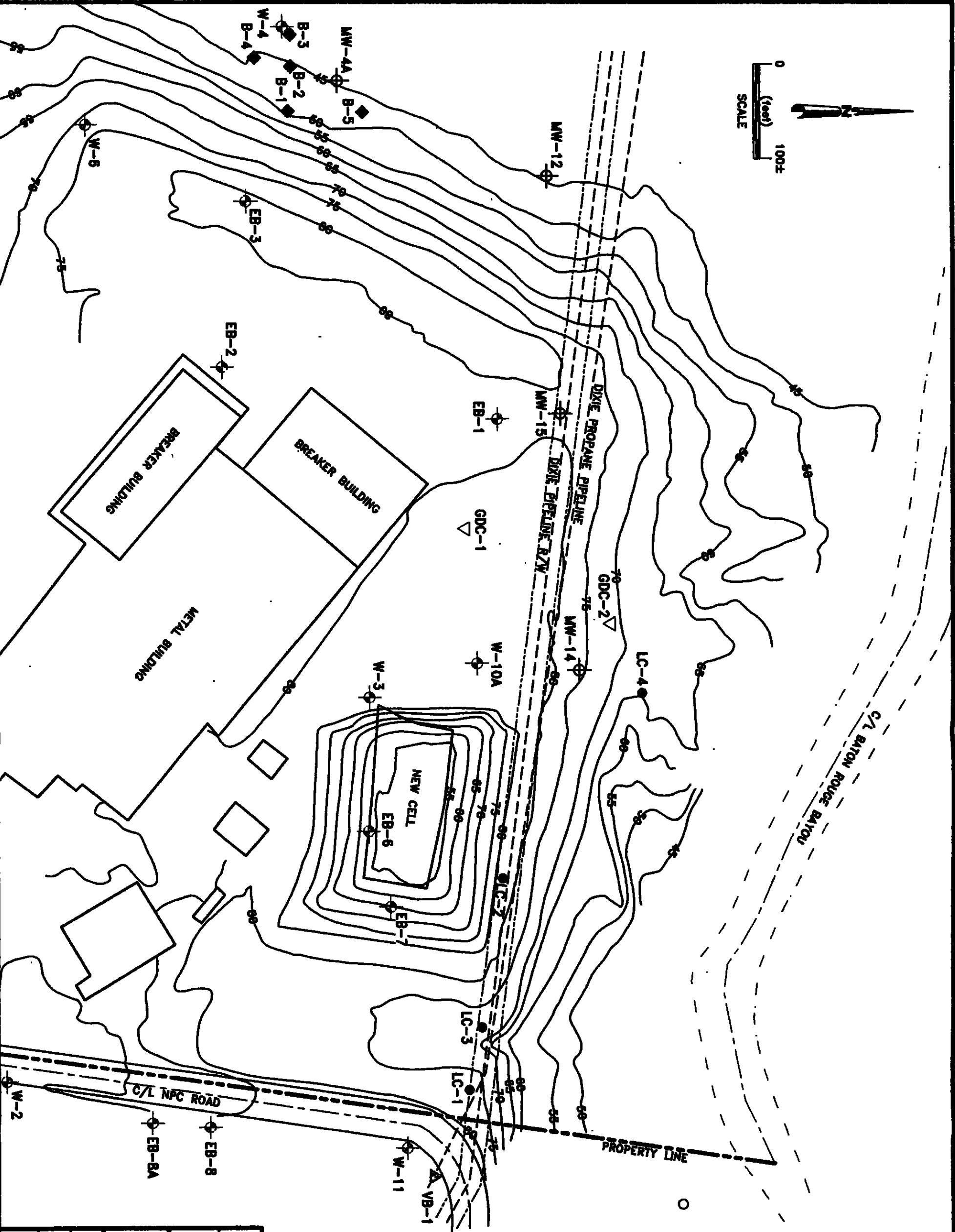









**APPENDIX 11**

**SOIL BORING LOGS AND SITE GEOLOGY REPORT**



- REFERENCE:**  
Survey by M.J. Deffield & Associates (undated).
- 50—
- |   |  |
|---|--|
|  | Boring/Well by WCC, 1980.                |
|  | Unidentified PVC Pipe recovery<br>02/86. |
|  | Plant Monitoring Well.                   |
|  | Boring by WCC, 1989.                     |
|  | Boring by LCA, 1995.                     |
|  | Boring by D&M, 1985.                     |
|  | Boring by GDC, 1986.                     |

A-58-1

|   |                          |                    |                   |
|---|--------------------------|--------------------|-------------------|
| <h1>SCHUYLKILL NORTH BANK</h1> <p>BATON ROUGE, LOUISIANA</p> <p><b>SCHUYLKILL METALS CORP.</b><br/>BATON ROUGE, LOUISIANA</p> |                          |                    |                   |
| <p>for</p>  |                          |                    |                   |
| <p><b>Soil Testing Engineers, Inc.</b></p>  |                          |                    |                   |
| <p>Baton Rouge, LA Leda Charles,</p>  |                          |                    |                   |
| <p>Project Engineer:<br/>G.P. Boutwell</p>  | <p>Drawn by:<br/>DMS</p> | <p>Checked by:</p> | <p>Figure No.</p> |
| <p>Title No.:<br/>94-1116</p>   | <p>Date:<br/>7-21-97</p> |                    |                   |
| <p>Title:<br/>PLAN OF KNOWN BORING</p>  |                          |                    |                   |

## LOG OF BORING

PROJECT

Existing Lead Production Plant  
Baton Rouge, LouisianaBORING EB-1  
FILE 80C5189  
DATE 9/24/80  
TECHNICIAN RM

CLIENT

Schuykill Metals Corporation  
Baton Rouge, Louisiana

Approx. Ground Surface Elev. = 77.0'

WASH BORED 16' to Bottom

DRY AUGERED 0 to 16'

No water entered the borehole during dry augering

| DEPTH<br>(FEET) | STANDARD<br>PENETRATION<br>TEST (SPT)<br>BLows/foot | WATER<br>CONTENT (%) | SHRINKAGE<br>SWELL (%) | UNIT<br>WEIGHT (pcf) | LL (%) | PL (%) | DESCRIPTION OF STRATUM   |
|-----------------|---|----------------------|------------------------|----------------------|--------|--------|--|
|                 |   |                      |                        |                      |        |        |  |
| 0               | Bag<br>2.5  |                      | 23                     |                      |        |        | Very stiff tan and brown CLAY with streaks and pockets (CH)                                  |
|                 | 2.0   |                      |                        |                      |        |        | Stiff brown and light gray Silty ferrous nodules (CL)  |
| 5               | 2.0   | 1.03                 | 25                     | 96                   | 32     | 12     |  |
|                 | 2.0   |                      |                        |                      |        |        |  |
|                 | 4.0   |                      |                        |                      |        |        | Very stiff tan and light gray CLAY with silt streaks and pockets and ferrous nodules (CL-CH) |
| 10              | 4.5   |                      |                        |                      |        |        |  |
|                 | 4.0   | 3.06                 | 22                     | 104                  | 46     | 30     |  |
| 15              | 4.0   |                      |                        |                      |        |        |  |
|                 | 4.0   |                      |                        |                      |        |        |  |
|                 | 3.0   |                      |                        |                      |        |        | Stiff light gray and brown Silty CLAY with trace sand and clayey silt layers (CL)            |
| 20              | 3.0   |                      | 26                     |                      | 30     | 8      |  |
|                 | 3.0   |                      |                        |                      |        |        |  |
|                 | 4.0   |                      |                        |                      |        |        | Very stiff tan, light gray and reddish-brown CLAY with ferrous nodules (CH)                  |
| 25              | 4.0   |                      | 20                     |                      |        |        |  |
|                 | 4.0   |                      |                        |                      |        |        |  |
|                 | 2.5   |                      | 24                     |                      | 40     | 26     | Stiff tan and light gray Silty CLAY with silty sand streaks and pockets (CL)                 |
| 30              |   |                      |                        |                      |        |        | Firm tan Silty SAND with clay pockets (ML)   |
|                 | 3.0   |                      |                        |                      |        |        |  |
| 35              | 4.5+  |                      | 22                     |                      |        |        | Very stiff tan and brown CLAY with trace silt streaks and ferrous nodules (CH)               |
|                 | 2.0   |                      |                        |                      |        |        | Stiff tan and light gray Clayey SILT with clay pockets and trace sand (CL-ML)                |
| 40              | 4.5+  |                      | 30                     |                      |        |        | Very stiff brown, tan and light gray CLAY with trace silt streaks and ferrous nodules (CH)   |
|                 | 4.5+  |                      |                        |                      |        |        |  |
|                 | 4.5+  |                      | 22                     |                      |        |        | ---with trace sand pockets   |
| 45              | 4.5+  |                      |                        |                      |        |        |  |
|                 | 4.5+  |                      |                        |                      |        |        |  |
|                 | 4.5+  |                      |                        |                      |        |        |  |
| 50              | 4.5+  |                      |                        |                      |        |        |  |

WOODWARD-CLYDE CONSULTANTS Bottom of boring at 50'

NOTE: Borehole grouted full depth after

## LOG OF BORING

BORING EB-2  
 FILE ROC5189  
 DATE 9/25/80  
 TECHNICIAN JRD

## PROJECT

Existing Lead Production Plant  
 Baton Rouge, Louisiana

## CLIENT

Schuylkill Metals Corporation  
 Baton Rouge, Louisiana

Approx. Ground Surface Elev. = 77.0'

| SOIL TYPE | DEPTH<br>FEET | PENETRATION<br>BLOWS/FOOT<br>OR<br>PET. PER.<br>(%) | DRY AUGERED 0 to 1'              |                            | WASH BORED 1' to Bottom |           |           | DESCRIPTION OF STRATUM   |
|-----------|---------------|---|----------------------------------|----------------------------|-------------------------|-----------|-----------|--|
|           |               |   | COMPRESSION<br>STRENGTH<br>(PSI) | MOISTURE<br>CONTENT<br>(%) | DRY<br>DENSITY<br>(PCF) | LL<br>(%) | PI<br>(%) |  |
|           | 0             |   |                                  |                            |                         |           |           | SLAG   |
|           | 5             | 1.5   |                                  |                            |                         |           |           | Medium to stiff tan and light gray Silty CLAY (CL)   |
|           |               | 1.7   | 0.85                             | 26                         | 93                      | 30        | 15        |  |
|           |               | 2.0   |                                  |                            |                         |           |           |  |
|           | 10            | 2.2   | 1.26                             | 21                         | 103                     | 40        | 25        | Stiff to very stiff tan and light gray CLAY with silt pockets and ferrous nodules (CH)                             |
|           |               | 3.0   |                                  |                            |                         |           |           |  |
|           |               | 3.7   |                                  |                            |                         |           |           |  |
|           | 15            | 4.5+  |                                  |                            |                         |           |           | ---with large silt and sand streaks and pockets from 18' to 22'  |
|           |               | 2.0   | 2.07                             | 23                         | 101                     | 41        | 19        |  |
|           |               | 2.5   |                                  |                            |                         |           |           |  |
|           |               | 4.0   |                                  |                            |                         |           |           |  |
|           | 25            |   |                                  | 16                         | 104                     |           |           | Firm tan Silty SAND with clay pockets and layers (ML)<br>---wet at 26 1/2'   |
|           |               | 18b/f   |                                  |                            |                         |           |           | Very stiff to hard tan and light gray CLAY with trace silt streaks (CH)  |
|           |               | 4.5+  |                                  |                            |                         |           |           |  |
|           | 30            | 4.0   |                                  |                            |                         |           |           |  |
|           |               | 4.5+  |                                  | 24                         |                         |           |           |  |
|           | 35            | 4.5+  |                                  |                            |                         |           |           | Firm tan Silty SAND with clay and sandy silt layers (ML)   |
|           |               |   |                                  | 25                         | 96                      |           |           |  |
|           | 40            | 16b/f   |                                  |                            |                         |           |           | Very stiff to hard tan and light gray CLAY with trace silt streaks (slickensided) (CH)<br><br>---with sand pockets |
|           |               | 4.5+  |                                  | 29                         |                         | 60        | 37        |  |
|           |               | 4.5+  |                                  |                            |                         |           |           |  |
|           | 45            | 4.5+  |                                  |                            |                         |           |           |  |
|           |               | 4.5+  |                                  |                            |                         |           |           |  |
|           | 50            | 4.5+  |                                  |                            |                         |           |           |  |

WOODWARD-CLYDE CONSULTANTS Bottom of boring at 50'

NOTE: Borehole grouted full depth after

## LOG OF BORING

BORING EB-3FILE 80C5189

DATE \_\_\_\_\_

TECHNICIAN \_\_\_\_\_

PROJECT

Existing Lead Production Plant  
Baton Rouge, Louisiana

CLIENT

Schuykill Metals Corporation  
Baton Rouge, Louisiana

WASH BORED

| SOIL SAMPLE | DEPTH<br>(FEET) | STANDARD<br>PENETRATION<br>(BLows-FOOT)<br>or<br>PT. PEN.<br>(TSF) | DRY AUGERED                      |                            | WATER LEVEL | LI<br>(%) | PI<br>(%) | DESCRIPTION OF STRATUM   |
|-------------|-----------------|--|----------------------------------|----------------------------|-------------|-----------|-----------|--|
|             |                 |  | COMPRESSION<br>STRENGTH<br>(TSF) | MOISTURE<br>CONTENT<br>(%) |             |           |           |  |
|             |                 |  |                                  |                            |             |           |           | This boring could not be drilled due to large thickness of slag (as much as about 20') |
|             |                 |  |                                  |                            |             |           |           |  |
|             |                 |  |                                  |                            |             |           |           |  |
|             |                 |  |                                  |                            |             |           |           |  |
|             |                 |  |                                  |                            |             |           |           |  |
|             |                 |  |                                  |                            |             |           |           |  |
|             |                 |  |                                  |                            |             |           |           |  |
|             |                 |  |                                  |                            |             |           |           |  |
|             |                 |  |                                  |                            |             |           |           |  |
|             |                 |  |                                  |                            |             |           |           |  |
|             |                 |  |                                  |                            |             |           |           |  |
|             |                 |  |                                  |                            |             |           |           |  |
|             |                 |  |                                  |                            |             |           |           |  |
|             |                 |  |                                  |                            |             |           |           |  |
|             |                 |  |                                  |                            |             |           |           |  |
|             |                 |  |                                  |                            |             |           |           |  |
|             |                 |  |                                  |                            |             |           |           |  |
|             |                 |  |                                  |                            |             |           |           |  |
|             |                 |  |                                  |                            |             |           |           |  |
|             |                 |  |                                  |                            |             |           |           |  |

WOODWARD-CLYDE CONSULTANTS

## LOG OF BORING

## PROJECT

BORING EB-4  
FILE 80C5189  
DATE 9/24/80  
TECHNICIAN JRD

**GENT**

[illegible]**WOODWARD-CLYDE CONSULTANTS**

## LOG OF BORING

PROJECT Existing Lead Production Plant  
Baton Rouge, Louisiana

BORING EB-4A

FILE 80C5189

DATE 9/24/80

TECHNICIAN JRD

CLIENT Schuykill Metals Corporation  
Baton Rouge, Louisiana

Approx. Ground Surface Elev. = 77.5'

| DEPTH<br>(FEET) | STANDARD<br>PENETRATION<br>(GLOWE-FOOT)<br>OR<br>PKT. PEN.<br>(TON) | DRY AUGERED 0 to 2'              |                            | WASH BORED 2' to Bottom |           |           | DESCRIPTION OF STRATUM  |
|-----------------|---|----------------------------------|----------------------------|-------------------------|-----------|-----------|---|
|                 |   | COMPRESSION<br>STRENGTH<br>(TSF) | MOISTURE<br>CONTENT<br>(%) | DRY<br>DENSITY<br>(PCF) | LL<br>(%) | PL<br>(%) |   |
| 0               | Bag   |                                  |                            |                         |           |           | SLAG  |
|                 | Bag   |                                  |                            |                         |           |           |   |
| 5               | 2.2   |                                  |                            |                         |           |           | Stiff tan and light gray Silty CLAY with<br>ferrous nodules (CL)  |
|                 | 2.0   | 1.11                             | 20                         | 102                     | 33        | 11        |   |
| 10              | 3.7   |                                  |                            |                         |           |           | Stiff to very stiff tan, light gray and<br>reddish-brown CLAY with sand and silt<br>streaks and pockets (CL-CH)   |
|                 | 4.5+  |                                  | 19                         |                         | 44        | 32        |   |
|                 | 4.2   |                                  |                            |                         |           |           |   |
| 15              | 4.5+  |                                  |                            |                         |           |           |   |
|                 | 4.5+  |                                  |                            |                         |           |           |   |
|                 | 3.0   |                                  | 24                         |                         |           |           | Stiff tan and light gray Silty CLAY with<br>silt and sand streaks and pockets (CL)                                |
| 20              | 2.0   |                                  | 23                         |                         |           | NP        | Firm tan and light gray Sandy SILT with<br>silt pockets and clay layer (ML)                                       |
|                 | 2.7   |                                  |                            |                         |           |           | Very stiff to hard tan, light gray and<br>reddish-brown CLAY with silt streaks and<br>pockets (slickensided) (CH) |
| 25              | 4.0   |                                  |                            |                         |           |           |   |
|                 | 4.5+  |                                  | 32                         |                         |           |           |   |
|                 | 4.5+  |                                  |                            |                         |           |           |   |
| 30              | 4.5+  |                                  |                            |                         |           |           |   |
|                 | 4.5+  |                                  | 20                         |                         |           |           | — with large calcareous nodules   |
| 35              | 4.5+  |                                  | 21                         |                         |           |           | Stiff tan and brown Clayey SILT with sand<br>and clay pockets (CL-ML)   |
|                 |   |                                  | 28                         | 99                      |           |           | Dense tan SILT with clay pockets and trace<br>sand (ML)   |
| 40              | 39b/E   |                                  |                            |                         |           |           | — with very stiff clay layers (CH)  |
|                 | 2.7   |                                  | 18                         |                         | 34        | 20        | Very stiff light gray Silty CLAY with silt<br>streaks and pockets (CL)  |
|                 | 3.7   |                                  |                            |                         |           |           | Very stiff to hard tan and light gray CLAY<br>with trace sand (CH)  |
| 45              | 4.2   |                                  |                            |                         |           |           |   |
|                 | 3.7   |                                  |                            |                         |           |           | — with sand streaks and pockets below 46'   |
| 50              | 3.5   |                                  |                            |                         |           |           |   |

WOODWARD-CLYDE CONSULTANTS Bottom of boring at 50'

## LOG OF BORING

PROJECT

Existing Lead Production Plant  
Baton Rouge, Louisiana

BORING EB-5

FILE 80C5189

DATE 9/23/80

TECHNICIAN JRD/RM

CLIENT

Schuylkill Metals Corporation  
Baton Rouge, Louisiana

Approx. Ground Surface Elev. = 78.1'

WASH CORED 12' to Bottom

Water entered the borehole at 10' initially; water at 10' after 15 min.

| SOIL SYMBOL | DEPTH (FEET) | STANDARD PENETRATION (BLows-FOOT) | WET ASSESSED 0 to 12' |                      |                   |    | LL (%) | P.L. (%) | DESCRIPTION OF STRATUM   |
|-------------|--------------|-----------------------------------|-----------------------|----------------------|-------------------|----|--------|----------|--|
|             |              |                                   | WATER CONTENT (%)     | MOISTURE CONTENT (%) | DWY DENSITY (PCF) |    |        |          |  |
|             | 0            | Bag 4.0                           |                       |                      |                   |    |        |          | Stiff to very stiff tan Silty CLAY (FILL) (CL)   |
|             | 1.5          |                                   |                       |                      |                   |    |        |          | Medium to stiff tan and light gray Clayey SILT with ferrous nodules (CL-ML)                              |
|             | 5            | 1.0                               | 0.94                  | 27                   | 94                | 27 | 5      |          |  |
|             | 1.2          |                                   |                       |                      |                   |    |        |          |  |
|             | 10           | 2.2                               |                       |                      |                   |    |        |          | Stiff to very stiff tan and light gray CLAY with trace silt streaks and pockets (CH)                     |
|             |              | 2.5                               |                       |                      |                   |    |        |          |  |
|             |              | 3.0                               |                       |                      |                   |    |        |          |  |
|             | 15           | 3.2                               | 2.00                  | 31                   | 94                | 63 | 45     |          |  |
|             |              | 3.5                               |                       |                      |                   |    |        |          |  |
|             |              | 3.5                               |                       |                      |                   |    |        |          |  |
|             | 20           | 4.5                               |                       |                      |                   |    |        |          | Very stiff to hard tan, light gray and brown CLAY with silt streaks and pockets and ferrous nodules (CH) |
|             |              | 4.5+                              |                       | 23                   |                   |    |        |          |  |
|             | 25           | 4.5+                              |                       |                      |                   |    |        |          |  |
|             |              | 4.5+                              |                       |                      |                   |    |        |          |  |
|             |              | 4.5                               |                       | 26                   |                   |    |        |          | —slickensided  |
|             | 30           | 4.5                               |                       |                      |                   |    |        |          |  |
|             |              | 4.5                               |                       |                      |                   |    |        |          | —with trace organic pockets  |
|             | 35           | 4.0                               |                       | 33                   |                   |    |        |          | —with silt layer (ML)  |
|             |              | 4.5                               |                       |                      |                   |    |        |          |  |
|             |              | 4.5                               |                       |                      |                   |    |        |          |  |
|             | 40           | 4.2                               |                       | 31                   |                   |    |        |          |  |
|             |              | 3.7                               |                       |                      |                   |    |        |          |  |
|             | 45           | 4.5+                              |                       |                      |                   |    |        |          |  |
|             |              | 4.5+                              |                       |                      |                   |    |        |          | —slickensided  |
|             |              | 4.5+                              |                       |                      |                   |    |        |          |  |
|             | 50           |                                   |                       |                      |                   |    |        |          |  |

WOODWARD-CLYDE CONSULTANTS Bottom of boring at 50'

NOTE: Hole grouted full depth after drilling



## LOG OF BORING

PROJECT Existing Lead Production Plant  
Baton Rouge, Louisiana

BORING EB-6  
FILE 80C5189  
DATE 1/12/81  
TECHNICIAN TMI

CLIENT Schryllkill Metals Corporation  
Baton Rouge, Louisiana

Very Approx. Ground Surface Elev. = 75'

| Bore<br>Stem | Depth<br>(Feet) | Standard<br>Penetration<br>(Blows/foot)<br>or<br>P.T. Pen.<br>(TSP) | Dry Augered 0 to 16'             |                            | Wash Bored 16' to Bottom |   | LL<br>(%) | PL<br>(%) | Description of Stratum  |
|--------------|-----------------|---|----------------------------------|----------------------------|--------------------------|---|-----------|-----------|---|
|              |                 |   | Compressive<br>Strength<br>(PSI) | Moisture<br>Content<br>(%) | Dry<br>Density<br>(PCF)  | No water entered the borehole during dry augering |           |           |   |
|              | 0               | 1.0   |                                  |                            |                          |   |           |           | Soft to medium tan and light gray Silty CLAY (FILL) (CL)  |
|              | 2.5             |   |                                  | 22                         |                          |   |           |           | Medium tan and light gray Silty CLAY with clay pockets and ferrous nodules (CL)                     |
|              | 4.2             |   |                                  | 21                         |                          |   |           |           | Stiff to very stiff tan and light gray CLAY with silt streaks and pockets and ferrous nodules (CH)  |
|              | 4.2             |   |                                  | 19                         |                          |   |           |           |   |
|              | 4.5             |   |                                  |                            |                          |   |           |           |   |
|              | 10              | 4.5   |                                  |                            |                          |   |           |           |   |
|              | 15              | 3.5   |                                  | 23                         |                          |   | 50        | 30        | —-with calcareous nodules   |
|              | 20              | 3.2   |                                  |                            |                          |   |           |           |   |
|              | 25              | *   |                                  | 23                         |                          |   |           |           | Firm tan and brown Sandy SILT with clay pockets and layers (ML)                                     |
|              | 30              |   |                                  | 25                         |                          |   |           |           | Stiff brown and tan Silty CLAY with clay pockets, clayey silt layers and trace ferrous nodules (CL) |
|              | 35              | 4.0   |                                  |                            |                          |   |           |           | Stiff to very stiff light gray and tan CLAY (CH)  |
|              | 40              | 3.5   |                                  | 24                         |                          |   |           |           |   |
|              | 45              | 4.2   |                                  |                            |                          |   |           |           |   |
|              | 50              | 4.0   |                                  |                            |                          |   |           |           |   |

WOODWARD-CLYDE CONSULTANTS

Bottom of boring at 50'

## LOG OF BORING

PROJECT Existing Lead Production Plant  
Baton Rouge, Louisiana

BORING EB-7  
FILE 80C5189  
DATE 1/23 & 24/81  
TECHNICIAN KTH

CLIENT Schuylkill Metals Corporation  
Baton Rouge, Louisiana

Very Approx.-Ground Surface Elev. = -61'

| SOIL SYMBOL | DEPTH<br>FEET | STANDARD<br>PENETRATION<br>(BLOWS-FOOT)<br>or<br>NET. PBL.<br>(TSF) | DRY AUGURED Full Depth           |                            |                         |    | LI<br>(%) | PI<br>(%) | DESCRIPTION OF STRATUM   |
|-------------|---------------|---|----------------------------------|----------------------------|-------------------------|----|-----------|-----------|--|
|             |               |   | COMPRESSION<br>STRENGTH<br>(TSF) | MOISTURE<br>CONTENT<br>(%) | DRY<br>DENSITY<br>(PCF) |    |           |           |  |
|             | 0             | 1.2   |                                  |                            |                         |    |           |           | Medium tan Silty CLAY with plastic and rubble (FILL)   |
|             |               | 1.9   |                                  |                            |                         |    |           |           | ---with slag   |
|             | 5             |   |                                  | 19                         |                         |    |           |           | Rocks, slag, plastic, clay, silt and miscellaneous FILL  |
|             |               |   |                                  | 31                         |                         |    |           |           | Medium tan and light gray Silty CLAY with ferrous nodules (CL)   |
|             | 10            | 9b/f  |                                  | 29                         |                         | 49 | 30        |           | Stiff tan and light gray CLAY with large silt streaks and pockets (CH)   |
|             |               | 16b/f   |                                  | 30                         |                         |    |           |           | Firm tan and brown Sandy SILT with clay lenses and pockets (ML)  |
|             | 15            | 1.7   | *                                | 27                         |                         |    |           |           |  |
|             |               | 3.4   | 2.50                             | 21                         | 108                     | 46 | 30        |           | Very stiff light gray and tan CLAY with silt and sand streaks and pockets (CH)   |
|             | 20            |   |                                  |                            |                         |    |           |           |  |
|             |               | 4.2   |                                  |                            |                         |    |           |           |  |
|             | 25            |   |                                  |                            |                         |    |           |           |  |
|             |               | 4.5+  |                                  | 28                         |                         | 56 | 31        |           | Very stiff tan and light gray Silty CLAY with sand and clay pockets (CL-CH)  |
|             | 30            |   |                                  |                            |                         |    |           |           | Bottom of boring at 30'  |
|             |               |   |                                  |                            |                         |    |           |           | * 67.8% passing the No. 200 sieve  |
|             |               |   |                                  |                            |                         |    |           |           | Notes: Because of access problems borehole was drilled with marsh buggy-mounted equipment. Upper 4' was pushed over site for access. Borehole grouted full depth after drilling. |

## LOG OF BORING

PROJECT Existing Lead Production Plant  
Baton Rouge, Louisiana

BORING EB-8  
FILE 80C5189  
DATE 1/23/81  
TECHNICIAN KTH

CLIENT Schuylkill Metals Corporation  
Baton Rouge, Louisiana

Very Approx. Ground Surface Elev. = 82'

| SOIL SYMBOL | DEPTH<br>FEET | DEPTH<br>METERS | STANDARD<br>PENETRATION<br>(BLOWS/FOOT)<br>OR<br>PT. PER.<br>(TSF) | DRY AUGERED Full Depth           |                            |                         | LI<br>(%) | PI<br>(%) | DESCRIPTION OF STRATUM  |
|-------------|---------------|-----------------|--|----------------------------------|----------------------------|-------------------------|-----------|-----------|---|
|             |               |                 |  | COMPRESSION<br>STRENGTH<br>(TSF) | MOISTURE<br>CONTENT<br>(%) | DRY<br>DENSITY<br>(PCF) |           |           |   |
|             | 0             |                 |  |                                  |                            |                         |           |           | COKE (FILL)   |
|             | 5             |                 |  |                                  |                            |                         |           |           |   |
|             | 10            |                 |  |                                  |                            |                         |           |           |   |
|             | 15            |                 |  |                                  |                            |                         |           |           | —becoming natural soils at 18'  |
|             | 20            |                 |  |                                  |                            |                         |           |           | <p>Note: Borehole augered 18' to determine thickness of coke. Borehole grouted full depth after drilling. Borehole moved 50' south, out of coke area, and drilled as EB-8A.</p> |
|             |               |                 |  |                                  |                            |                         |           |           |   |
|             |               |                 |  |                                  |                            |                         |           |           |   |
|             |               |                 |  |                                  |                            |                         |           |           |   |
|             |               |                 |  |                                  |                            |                         |           |           |   |
|             |               |                 |  |                                  |                            |                         |           |           |   |
|             |               |                 |  |                                  |                            |                         |           |           |   |
|             |               |                 |  |                                  |                            |                         |           |           |   |
|             |               |                 |  |                                  |                            |                         |           |           |   |
|             |               |                 |  |                                  |                            |                         |           |           |   |
|             |               |                 |  |                                  |                            |                         |           |           |   |

WOODWARD-CLYDE CONSULTANTS

## LOG OF BORING

PROJECT Existing Lead Production Plant  
Baton Rouge, Louisiana

BORING ER-8A  
FILE 80C5189  
DATE 1/23/81  
TECHNICIAN KTH

CLIENT Schuylkill Metals Corporation  
Baton Rouge, Louisiana

Very Approx. Ground Surface Elev. = 82'

WASH BORED - 5' to Bottom

| SOIL SYMBOL | DEPTH<br>FEET | STANDARD<br>PENETRATION<br>(BLows-FOOT)<br>OR<br>REL. PEN.<br>(PSF) | DRY AUGERED 0 to 6'             |                            |                         |           | DESCRIPTION OF STRATUM   |
|-------------|---------------|---|---------------------------------|----------------------------|-------------------------|-----------|--|
|             |               |   | COMPACTION<br>STRENGTH<br>(PSF) | MOISTURE<br>CONTENT<br>(%) | DRY<br>DENSITY<br>(PCF) | LL<br>(%) |  |
|             | 0             |   |                                 |                            |                         |           |  |
|             | 2.5           |   |                                 |                            |                         |           | Stiff tan and brown Silty CLAY with coke and miscellaneous fill (FILL)                                   |
|             | 2.0           |   |                                 | 22                         |                         |           |  |
|             | 5             | 1.4   | 0.68                            | 28                         | 89                      |           |  |
|             | 1.6           |   |                                 | 25                         |                         | 39        | Medium tan and brown Silty CLAY with ferrous nodules (CL)  |
|             | 1.7           |   |                                 |                            |                         | 18        |  |
|             | 10            | 3.1   |                                 | 21                         |                         |           |  |
|             | 15            | 3.4   |                                 |                            |                         |           | Very stiff tan, light gray and reddish-brown CLAY with silt streaks and pockets and ferrous nodules (CH) |
|             | 20            | 3.3   |                                 | 22                         |                         |           |  |
|             |               |   |                                 |                            |                         |           |  |
|             | 25            | 1.9   |                                 | 26                         |                         | 36        | Medium tan and light gray Silty CLAY with large sandy silt layer (CL)                                    |
|             | 30            | 3.5   |                                 | 25                         |                         | 52        |  |
|             | 35            | 3.0   |                                 |                            |                         |           |  |
|             | 40            | 4.2   |                                 |                            |                         |           | Very stiff tan and light gray CLAY with trace silt and streaks and pockets (CH) (slickensided)           |
|             | 45            | 3.5   |                                 |                            |                         |           |  |
|             | 50            | 4.5+  |                                 |                            |                         |           |  |

WOODWARD-CLYDE CONSULTANTS Bottom of boring at 50'

Note: Lost circulation at 35'. Moved 5' and

## LOG OF BORING

PROJECT Existing Lead Production Plant  
Baton Rouge, Louisiana

BORING W-1  
FILE 80C5189  
DATE 9/25/80  
TECHNICIAN JRD

CLIENT Schuykill Metals Corporation  
Baton Rouge, Louisiana

Approx. Ground Surface Elev. = 82.1'

| SOIL SYMBOL |       | DEPTH<br>(FEET) | STANDARD<br>PENETRATION<br>(BLOW/FOOT)<br>OR<br>PPT. PER<br>(100') | DRY AVERAGE 0 to 16'             |                            |                         |           | WASH SERIES 16' to Bottom |   | DESCRIPTION OF STRATUM                          |   |
|-------------|-------|-----------------|--|----------------------------------|----------------------------|-------------------------|-----------|---------------------------|---|---|---|
|             |       |                 |  | COMPRESSION<br>STRENGTH<br>(TSF) | MOISTURE<br>CONTENT<br>(%) | DRY<br>DENSITY<br>(PCF) | LL<br>(%) | PL<br>(%)                 | No water entered the borehole during dry augering   |   |   |
| 0           |       |                 | 4.5+   |                                  |                            |                         |           |                           |   | Very stiff tan Silty CLAY with grass roots (CL) |   |
|             |       |                 | 2.0  |                                  |                            |                         |           |                           |   | Medium to stiff tan and brown Silty CLAY (CL)   |   |
|             |       | 5               | 2.5  |                                  |                            |                         |           |                           |   |   |   |
|             |       |                 | 0.7  | 0.56                             | 27                         | 94                      | 30        | 5                         |   |   | —with roots at 2' to 4'   |
|             |       |                 |  |                                  |                            |                         |           |                           |   |   | —clayey silt (ML)   |
|             |       |                 | 1.2  |                                  |                            |                         |           |                           |   |   |   |
|             |       | 10              | 2.0  | 1.53                             | 21                         | 106                     | 38        | 22                        |   |   | Stiff tan and light gray Silty CLAY with ferrous nodules (CL)   |
|             |       |                 | 3.2  |                                  |                            |                         |           |                           |   |   | Very stiff to hard tan and light gray CLAY with silt streaks and pockets, trace sand and ferrous nodules (CH) |
|             |       | 15              | 4.2  |                                  |                            |                         |           |                           |   |   |   |
|             |       |                 | 4.5+   |                                  | 28                         |                         |           |                           |   |   | —with calcareous nodules  |
| 4.5+        |       |                 |  |                                  |                            |                         |           |                           |   |   |   |
| 20          | 4.5+  |                 |  |                                  |                            |                         |           |                           |   |   |   |
|             | 2.2   |                 | 20   |                                  |                            |                         |           |                           | —with layer of stiff silty clay with clay pockets (CL)  |   |   |
|             | 25    | 4.5+            |  |                                  |                            |                         |           |                           |   |   |   |
| 4.5+        |       |                 |  |                                  |                            |                         |           |                           |   |   |   |
| 4.2         |       |                 |  |                                  |                            |                         |           |                           |   |   |   |
| 30          | 4.2   |                 | 15   |                                  | 47                         | 32                      |           |                           | —slickensided (CL-CH)   |   |   |
|             | 4.5+  |                 |  |                                  |                            |                         |           |                           | —with calcareous nodules  |   |   |
|             | 35    | 4.5+            |  |                                  |                            |                         |           |                           |   |   |   |
| 4.5+        |       |                 |  |                                  |                            |                         |           |                           |   |   |   |
| 4.5+        |       |                 | 25   |                                  |                            |                         |           |                           |   |   |   |
| 40          | 3.7   |                 |  |                                  |                            |                         |           |                           | Dense tan SILT with trace sand and clay pockets (ML)  |   |   |
|             | 34b/E |                 |  |                                  |                            |                         |           |                           |   |   |   |
| 45          | 3.0   |                 | 21   |                                  |                            |                         |           |                           | Very stiff light gray and tan CLAY with silt streaks and pockets (CH)                                 |   |   |
|             |       |                 |  |                                  |                            |                         |           |                           | Bottom of boring at 46'   |   |   |
| 50          |       |                 |  |                                  |                            |                         |           |                           | NOTE: After drilling of borehole, an observation well was installed with a 10" well screen at bottom. |   |   |

WOODWARD-CLYDE CONSULTANTS

## LOG OF BORING

PROJECT Existing Lead Production Plant  
Baton Rouge, Louisiana

BORING W-2  
FILE 80C5189  
DATE 9/26/80  
TECHNICIAN JRD

CLIENT Schuylkill Metals Corporation  
Baton Rouge, Louisiana

Approx. Ground Surface Elev. = 82.2'

| SOIL SYMBOL | DEPTH<br>FEET | STANDARD<br>PENETRATION<br>(BLows/4000)<br>or<br>REL. PEN.<br>(TSF) | DRY AVERAGE 0 to 10'             |                            | WATER SORED 10' to Bottom |           |           | DESCRIPTION OF STRATUM   |
|-------------|---------------|---|----------------------------------|----------------------------|---------------------------|-----------|-----------|--|
|             |               |   | COMPRESSION<br>STRENGTH<br>(TSF) | MOISTURE<br>CONTENT<br>(%) | DRY<br>DENSITY<br>(PCF)   | LL<br>(%) | PL<br>(%) |  |
|             | 0             | 4.5+  |                                  |                            |                           |           |           | Very stiff to hard tan and brown Silty CLAY (CL)   |
|             |               | 2.5   |                                  | 20                         |                           |           |           | Medium to stiff tan and brown Silty CLAY with ferrous nodules (CL)                                 |
|             | 5             | 1.7   |                                  |                            |                           |           |           |  |
|             |               | 0.7   | 0.88                             | 28                         | 94                        | 36        | 17        |  |
|             | 10            | 2.0   |                                  |                            |                           |           |           | Stiff to very stiff tan and light gray CLAY with silt streaks and pockets and ferrous nodules (CH) |
|             |               | 2.7   | 2.31                             | 19                         | 108                       |           |           |  |
|             | 15            | 3.2   |                                  |                            |                           |           |           |  |
|             |               | 3.5   |                                  |                            |                           |           |           |  |
|             | 20            |   |                                  |                            |                           |           |           |  |
|             |               | 3.5   |                                  | 21                         |                           | 17        | NP        | ---with layer of stiff clayey silt with sand (ML)  |
|             | 25            |   |                                  |                            |                           |           |           |  |
|             |               | 4.5+  |                                  |                            |                           |           |           |  |
|             | 30            |   |                                  |                            |                           |           |           |  |
|             |               | 4.5+  |                                  |                            |                           |           |           |  |
|             | 35            |   |                                  |                            |                           |           |           |  |
|             |               | 4.2   |                                  | 27                         |                           |           |           | ---with layers of stiff silty clay (CL) and sand streaks and pockets                               |
|             | 40            |   |                                  |                            |                           |           |           |  |
|             |               | 3.2   |                                  |                            |                           |           |           | ---slickensided  |
|             | 45            |   |                                  |                            |                           |           |           |  |
|             |               | 4.5+  |                                  | 26                         |                           |           |           |  |
|             | 50            |   |                                  |                            |                           |           |           |  |

WOODWARD-CLYDE CONSULTANTS Bottom of boring at 50'

## LOG OF BORING

## PROJECT

Existing Lead Production Plant  
Baton Rouge, Louisiana

BORING N-1FILE 80C5189DATE 9/27/80TECHNICIAN JRD

## CLIENT

Schuykill Metals Corporation  
Baton Rouge, Louisiana

Approx. Ground Surface Elev. = 77.9'

| SOIL STRATA | DEPTH<br>FEET | STANDARD<br>PENETRATION<br>(BLOW/FOOT)<br>OR<br>P.C. PER.<br>(TSP) | DRY AUGERED 0 to 20'             |                            | WASH BORER 20' to Bottom |             |             | DESCRIPTION OF STRATUM  |
|-------------|---------------|--|----------------------------------|----------------------------|--------------------------|-------------|-------------|---|
|             |               |  | COMPRESSION<br>STRENGTH<br>(TSP) | MOISTURE<br>CONTENT<br>(%) | WET<br>DENSITY<br>(PCF)  | L.L.<br>(%) | P.L.<br>(%) |   |
|             | 0             | Bag  |                                  |                            |                          |             |             | Very stiff tan Silty CLAY with rubble (CL)  |
|             | 1.5           |  |                                  |                            |                          |             |             | Medium to stiff tan and light gray Silty CLAY with trace ferrous nodules (CL)                         |
|             | 5             | 1.5  | 1.15                             | 24                         | 97                       | 33          | 11          |   |
|             |               | 1.7  |                                  |                            |                          |             |             |   |
|             | 10            | 3.0  |                                  |                            |                          |             |             | Stiff to very stiff tan and light gray CLAY with silt streaks and pockets and ferrous nodules (CH)    |
|             |               | 3.2  |                                  | 21                         |                          | 49          | 33          |   |
|             | 15            | 4.0  |                                  |                            |                          |             |             |   |
|             | 20            | 4.2  |                                  | 22                         |                          |             |             |   |
|             | 25            | 3.0  |                                  |                            |                          |             |             |   |
|             | 30            | 4.5+   |                                  | 25                         |                          |             |             |   |
|             | 35            |  |                                  | 27                         |                          |             |             | Layers of stiff tan Clayey SILT and firm Sandy SILT- Silty SAND (CL-ML, ML)                           |
|             |               |  |                                  |                            |                          |             |             | Very stiff tan and light gray CLAY with silt streaks and pockets (CH)                                 |
|             | 40            | 4.5+   |                                  | 30                         |                          |             |             |   |
|             |               |  |                                  |                            |                          |             |             | Bottom of boring at 40'   |
|             |               |  |                                  |                            |                          |             |             | NOTE: After drilling of borehole, an observation well was installed with a 10' well screen at bottom. |

## LOG OF BORING

PROJECT Existing Lead Production Plant  
Baton Rouge, Louisiana

BORING W-4  
FILE 80C5189  
DATE 10/10/80  
TECHNICIAN RM

CLIENT Schuylkill Metals Corporation  
Baton Rouge, Louisiana

Approx. Ground Surface Elev. = 42.9'

| DEPTH<br>(FEET) | STANDARD<br>PENETRATION<br>(BLows/FOOT)<br>or<br>PT. PEN.<br>(TSF) | DRY AUGERED 0 to 10'             |                            | WIRE ROPE 10' to Bottom |           |           | DESCRIPTION OF STRATUM  |
|-----------------|--|----------------------------------|----------------------------|-------------------------|-----------|-----------|---|
|                 |  | COMPRESSION<br>STRENGTH<br>(TSF) | MOISTURE<br>CONTENT<br>(%) | DRY<br>DENSITY<br>(PCF) | LL<br>(%) | PL<br>(%) |   |
| 0               | Dist.  |                                  | 5                          |                         |           |           | Very loose tan Sandy SILT (ML)  |
| 2b/f            |  |                                  |                            |                         |           |           |   |
| 5               | Bag  |                                  |                            |                         |           |           | — with clay streaks and pockets   |
|                 | Bag  |                                  | 32                         |                         | 28        | 7         | Very soft to soft gray, brown and tan Clayey SILT with trace organics and sand pockets (CL-ML)        |
|                 | Bag  |                                  |                            |                         |           |           |   |
| 10              |  |                                  |                            |                         |           |           | Stiff to very stiff tan and light gray CLAY with silt streaks and pockets with ferrous nodules (CH)   |
| 15              | 3.0  |                                  | 25                         |                         | 50        | 32        |   |
| 20              | 2.5  |                                  |                            |                         |           |           |   |
| 25              | 4.0  |                                  | 26                         |                         |           |           | — with calcareous nodules   |
| 30              | 4.5  |                                  |                            |                         |           |           |   |
|                 |  |                                  |                            |                         |           |           | Bottom of boring at 30'   |
|                 |  |                                  |                            |                         |           |           | NOTE: After drilling of borehole, an observation well was installed with a 10' well screen at bottom. |

WOODWARD-CLYDE CONSULTANTS



## LOG OF BORING

## PROJECT

**Existing Lead Production Plant  
Baton Rouge, Louisiana**

## CLIENT

**..Schuylkill Metals Corporation**  
**Baton Rouge, Louisiana**

**W-5**

FILE **80C5189**

DATE

**: TECHNICIAN**

**WASH. POST**

| SOIL SYMBOL |  | DEPTH<br>(FEET) | STANDARD<br>PENETRATION<br>(BLows/FOOT)<br>or<br>PT. PEN.<br>(TSF) | WATER LEVEL<br>DEPTH<br>(FEET) | MOISTURE<br>CONTENT<br>(%) | SHRINKAGE<br>VALUE<br>(%) | LI.<br>(%) | PL<br>(%) | DESCRIPTION OF SAMPLE   |
|-------------|--|-----------------|--|--------------------------------|----------------------------|---------------------------|------------|-----------|---|
|             |  |                 |  |                                |                            |                           |            |           | Two false starts at 3' each in slag. Hole abandoned due to large thickness of slag. |

**-WOODWARD-CLYDE CONSULTANTS**

## LOG OF BORING

PROJECT Existing Lead Production Plant  
Baton Rouge, Louisiana

CLIENT Schuylkill Metals Corporation  
Baton Rouge, Louisiana

BORING W-6  
FILE 80C5189  
DATE \_\_\_\_\_  
TECHNICIAN \_\_\_\_\_

| SOIL SYMBOL |  | DEPTH<br>(FEET) | STANDARD<br>PENETRATION<br>(BLows-FOOT)<br>or<br>PT. PEN.<br>(TSF) | WATER LEVEL | MOISTURE<br>CONTENT<br>(%) | DRY<br>DENSITY<br>(PCF) | LI<br>(%) | PL<br>(%) | DESCRIPTION OF STRATUM   |
|-------------|--|-----------------|--|-------------|----------------------------|-------------------------|-----------|-----------|--|
|             |  |                 |  |             |                            |                         |           |           | This boring could not be drilled due to large thickness of slag (as much as about 20') |

## LOG OF BORING

PROJECT

Existing Lead Production Plant  
Baton Rouge, Louisiana

BORING W-7----

FILE 80C5189

DATE 9/26/80

TECHNICIAN RM

CLIENT

Schuykill Metals Corporation  
Baton Rouge, Louisiana

Approx. Ground Surface Elev. = 41.6'

| SOIL SYMBOL | DEPTH (ft) | STANDARD PENETRATION (blows/foot) or<br>PT. PER. (MP) | DRY AUGERED 0 to 16'       |                      |                   | WASH BORED 16' to Bottom |        | DESCRIPTION OF STRATUM  |
|-------------|------------|---|----------------------------|----------------------|-------------------|--------------------------|--------|---|
|             |            |   | COMPRESSIVE STRENGTH (PSF) | MOISTURE CONTENT (%) | DRY DENSITY (PCF) | LI (%)                   | PL (%) |   |
|             | 0          |   |                            | 10                   |                   |                          |        | Loose tan, brown and light gray SILT with clay pockets and trace organics (ML)                        |
|             | 2.5        |   |                            |                      |                   |                          |        | Stiff tan and light gray Silty CLAY (CL)  |
|             | 5          | 1.5   | 0.40                       | 26                   | 93                | 33                       | 12     | Soft to medium tan and light gray Silty CLAY (CL)   |
|             | 2.0        |   |                            |                      |                   |                          |        | Stiff to very stiff tan and light gray CLAY with ferrous nodules (CH)                                 |
|             | 2.0        |   |                            | 26                   |                   |                          |        |   |
|             | 2.5        |   |                            |                      |                   |                          |        |   |
|             | 2.5        |   |                            | 30                   |                   | 37                       | 19     | — with layer of stiff silty clay (CL)   |
|             | 2.2        |   |                            | 28                   |                   |                          |        | — stiff clayey silt with large clay and sandy silt streaks, pockets and layers (CL-ML)                |
|             | 2.5        |   |                            |                      |                   |                          |        |   |
|             | 2.5        |   |                            |                      |                   |                          |        |   |
|             | 3.0        |   |                            | 27                   |                   | 34                       | 21     | — with clayey silt streaks and pockets  |
|             | 3.0        |   |                            |                      |                   |                          |        |   |
|             | 4.5+       |   |                            | 26                   |                   |                          |        | Very stiff to hard tan and light gray CLAY with silt streaks and pockets and ferrous nodules (CH)     |
|             | 4.5+       |   |                            |                      |                   |                          |        |   |
|             | 4.0        |   |                            |                      |                   |                          |        |   |
|             | 30         |   |                            |                      |                   |                          |        | Bottom of boring at 30'   |
|             |            |   |                            |                      |                   |                          |        | NOTE: After drilling of borehole, an observation well was installed with a 10' well screen at bottom. |

WOODWARD-CLYDE CONSULTANTS

## LOG OF BORING

PROJECT

Existing Lead Production Plant  
Baton Rouge, Louisiana

BORING W-8

FILE BOC5189

DATE 9/27/80

TECHNICIAN RM

CLIENT

Schuylkill Metals Corporation  
Baton Rouge, Louisiana

Approx. Ground Surface Elev. = 50.5'

| SOIL SYMBOL | DEPTH<br>FEET | STANDARD<br>PENETRATION<br>(BLows-FOOT)<br>or<br>P.C.T. PEN.<br>(PSF) | DRY AUGERED 0 to 16'             |                            | WIRE CORED 16' to Bottom |           |           | DESCRIPTION OF STRATUM   |
|-------------|---------------|---|----------------------------------|----------------------------|--------------------------|-----------|-----------|--|
|             |               |   | COMPRESSION<br>STRENGTH<br>(PSF) | MOISTURE<br>CONTENT<br>(%) | DRY<br>DENSITY<br>(PCF)  | LL<br>(%) | PL<br>(%) |  |
|             | 0             | 4.5+  |                                  | 18                         |                          |           |           | Very stiff tan Silty CLAY with grass roots (CL)  |
|             |               | 3.0   |                                  |                            |                          |           |           | Stiff to very stiff light gray and tan CLAY with silt streaks and pockets and ferrous nodules (CH) |
|             | 5             | 2.5   | 1.60                             | 30                         | 91                       | 67        | 45        |  |
|             |               | 2.0   |                                  | 19                         |                          |           |           |  |
|             |               | 2.5   |                                  |                            |                          |           |           |  |
|             |               | 3.2   | 2.30                             | 28                         | 95                       | 65        | 41        | — with calcareous nodules  |
|             | 10            |   |                                  |                            |                          |           |           |  |
|             |               | 4.0   |                                  |                            |                          |           |           |  |
|             | 15            | 4.5+  |                                  |                            |                          |           |           |  |
|             |               |   |                                  |                            |                          |           |           |  |
|             |               | 4.0   |                                  | 26                         |                          |           |           | — with stiff silty clay layer (CL)   |
|             | 20            |   |                                  |                            |                          |           |           |  |
|             |               | 4.5   |                                  | 30                         |                          | 38        | 14        | — with large silt streaks and pockets (CL)   |
|             | 25            |   |                                  |                            |                          |           |           |  |
|             |               | 4.0   |                                  | 27                         |                          |           |           | — with stiff silty clay layer (CL) and sandy silt layers (ML)                                      |
|             | 30            |   |                                  |                            |                          |           |           |  |
|             |               | 4.5   |                                  |                            |                          |           |           |  |
|             | 35            |   |                                  |                            |                          |           |           |  |
|             |               | 4.0   |                                  | 20                         |                          |           |           | Firm light gray SILT with large ferrous nodules and little sand (ML)                               |
|             | 40            |   |                                  |                            |                          |           |           |  |
|             |               | 4.2   |                                  | 33                         |                          |           |           | Very stiff tan and light gray CLAY with ferrous nodules (CH)                                       |
|             | 45            |   |                                  |                            |                          |           |           |  |
|             |               |   |                                  |                            |                          |           |           | Bottom of boring at 47'  |
|             |               |   |                                  |                            |                          |           |           | NOTE: After drilling of borehole, an observation well was installed with                           |
|             | 50            |   |                                  |                            |                          |           |           |  |

WOODWARD-CLYDE CONSULTANTS

## LOG OF BORING

PROJECT Existing Lead Production Plant  
Baton Rouge, Louisiana

BORING W-9  
FILE 80C5189  
DATE 9/26/80  
TECHNICIAN RM

CLIENT Schrylkill Metals Corporation  
Baton Rouge, Louisiana

Approx. Ground Surface Elev. = 59.5'

| DEPTH<br>(FEET) | STANDARD<br>PENETRATION<br>(BLows/FOOT)<br>OR<br>PT. PEN.<br>(TSF) | DRY AUGERED 0 to 8'              |                            | WASH BORER 8' to Bottom |           |           | DESCRIPTION OF STRATUM   |
|-----------------|--|----------------------------------|----------------------------|-------------------------|-----------|-----------|--|
|                 |  | COMPRESSION<br>STRENGTH<br>(TSF) | MOISTURE<br>CONTENT<br>(%) | DRY<br>DENSITY<br>(PCF) | LL<br>(%) | PL<br>(%) |  |
| 0               |  |                                  |                            |                         |           |           | SLAG   |
| 5               | 1.5  |                                  | 25                         |                         | 49        | 31        | Stiff tan and light gray CLAY (CL-CH)  |
| 10              | 2.0  |                                  | 24                         |                         |           |           | Stiff to very stiff tan, light gray and greenish-gray CLAY with ferrous nodules (CH)                           |
| 15              | 2.0  | 1.48                             | 25                         | 97                      |           |           | Stiff tan and light gray CLAY with ferrous nodules (CH)  |
| 20              | 2.5  |                                  | 23                         |                         | 57        | 30        | — with large silt streaks and pockets  |
| 25              | 2.5  |                                  |                            |                         |           |           |  |
| 30              | 4.0  |                                  |                            |                         |           |           |  |
| 35              | 1.5  |                                  | 25                         |                         | 34        | 11        | Stiff tan and light gray Silty CLAY with streaks, pockets and layers, clay pockets and calcareous nodules (CL) |
| 40              | 3.0  |                                  |                            |                         |           |           | Stiff to very stiff tan and light gray CLAY with silt pockets and layers and calcareous nodules (CH)           |
| 45              | 4.0  |                                  | 27                         |                         |           |           |  |
| 50              | 3.2  |                                  |                            |                         |           |           |  |

WOODWARD-CI YDE CONSULTANTS Bottom of boring at 50'

## LOG OF BORING

PROJECT

Existing Lead Production Plant  
Baton Rouge, Louisiana

BORING W-10

FILE 80C5189

DATE 1/12/81

TECHNICIAN TML

CLIENT

Schuykill Metals Corporation  
Baton Rouge, Louisiana

Approx. Ground Surface Elev. = 79.0'

| DEPTH<br>(FEET) | STANDARD<br>PENETRATION<br>(BLows/FOOT)<br>OR<br>PEL. PER.<br>(TSF) | Dry Augered 0 to 16'             |                            |                         |           |           | DESCRIPTION OF STRATUM   |
|-----------------|---|----------------------------------|----------------------------|-------------------------|-----------|-----------|--|
|                 |   | COMPRESSION<br>STRENGTH<br>(TSF) | MOISTURE<br>CONTENT<br>(%) | DRY<br>DENSITY<br>(PCF) | LL<br>(%) | PL<br>(%) |  |
| 0               | 2.5   |                                  |                            |                         |           |           | Medium brown and tan Silty CLAY with silt streaks and pockets and ferrous nodules (CL)   |
| 2.5             | 2.5   |                                  | 28                         |                         |           |           |  |
| 5               | 1.2   | 0.69                             | 28                         | 94                      | 33        | 9         |  |
| 7.5             | 2.2   |                                  | 26                         |                         |           |           |  |
| 10              | 3.0   |                                  | 21                         |                         |           |           | Stiff tan and light gray Silty CLAY (CL)   |
| 12.5            | 4.5   |                                  |                            |                         |           |           | Very stiff tan and light gray CLAY with silt streaks and pockets (CH)  |
| 15              | 4.0   |                                  | 23                         |                         |           |           |  |
| 17.5            |   |                                  | 28                         |                         | 31        | 9         | Stiff light gray and tan Clayey SILT with sand and clay streaks and pockets (CL-ML)  |
| 20              |   |                                  |                            |                         |           |           | Very stiff tan and light gray CLAY with trace silt and ferrous nodules (CH)  |
| 22.5            | 4.5   |                                  |                            |                         |           |           |  |
| 25              |   |                                  |                            |                         |           |           | Stiff brown and light gray Silty CLAY with sand and silt streaks and pockets and clayey silt layers (CL)                       |
| 27.5            | 4.5   |                                  | 24                         |                         |           |           |  |
| 30              |   |                                  |                            |                         |           |           | Very stiff tan and light gray CLAY with trace silt (CH)  |
| 32.5            | 3.7   |                                  |                            |                         |           |           |  |
| 35              |   |                                  |                            |                         |           |           | Firm tan and brown Silty SAND with clay streaks and pockets and clayey silt layers (ML)  |
| 37.5            |   |                                  | 22                         |                         |           |           |  |
| 40              |   |                                  |                            |                         |           |           | Very stiff tan and light gray CLAY (CH)  |
| 42.5            | 4.5+  |                                  |                            |                         |           |           |  |
| 45              |   |                                  |                            |                         |           |           | Bottom of boring at 45'<br>Note: After drilling of borehole an observation well was installed with a 10' well screen at bottom |

WOODWARD-CLYDE CONSULTANTS

## LOG OF BORING

## PROJECT

Existing Lead Production Plant  
Baton Rouge, Louisiana

BORING - W-11

FILE 80C5189

DATE 1/22/81

TECHNICIAN KIR

## CLIENT

Schuykill Metals Corporation  
Baton Rouge, Louisiana

Approx. Ground Surface Elev. = 82'

| DEPTH<br>(FEET) | STANDARD<br>PENETRATION<br>(BLows/foot)<br>or<br>PCT. PEN.<br>(TSF) | COMPRESSION<br>STRENGTH<br>(TSF) | MOISTURE<br>CONTENT<br>(%) | DRY<br>DENSITY<br>(PCF) | LL<br>(%) | PL<br>(%) | DESCRIPTION OF STRATUM  |
|-----------------|---|----------------------------------|----------------------------|-------------------------|-----------|-----------|---|
|                 |   |                                  |                            |                         |           |           |   |
| 0               | 4.5+  |                                  |                            |                         |           |           | Stiff brown silty CLAY (CL)   |
| 1.3             |   |                                  | 28                         |                         | 47        | 23        | Medium tan and brown Silty CLAY with ferrous nodules (CL)                                       |
| 5               | 3.2   |                                  |                            |                         |           |           | Stiff tan, brown and light gray Silty CLAY with ferrous nodules and silt pockets (CL)           |
| 2.7             |   |                                  | 25                         |                         |           |           |   |
| 2.0             |   |                                  |                            |                         |           |           |   |
| 10              | 4.0   |                                  | 18                         |                         |           |           | Very stiff tan and light gray CLAY with trace silt streaks and pockets and ferrous nodules (CH) |
| 15              | 3.6   |                                  | 19                         |                         | 50        | 32        |   |
| 4.4             |   |                                  |                            |                         |           |           | —jointed  |
| 20              |   |                                  |                            |                         |           |           |   |
| 2.5             |   |                                  |                            |                         |           |           | Stiff brown, tan and light gray Silty CLAY with silt streaks and pockets (CL)                   |
| 2.8             |   |                                  | 24                         |                         | 38        | 17        | —with large sandy silt pockets and streaks and 6" silty sand layer                              |
| 30              |   |                                  |                            |                         |           |           |   |
| 3.9             |   |                                  | 28                         |                         |           |           | Stiff to very stiff tan and brown CLAY with trace silt pockets and ferrous nodules              |
| 2.7             |   |                                  |                            |                         |           |           |   |
| 40              |   |                                  |                            |                         |           |           |   |
| 3.2             |   |                                  |                            |                         |           |           |   |
| 45              |   |                                  |                            |                         |           |           | —with large calcareous nodules  |
| 4.0             |   |                                  |                            |                         |           |           |   |
| 50              |   |                                  |                            |                         |           |           |   |

Bottom of boring at 50'

WOODWARD-CLYDE CONSULTANTS

PROJECT: Monitor Well Installation  
Baton Rouge, Louisiana

FOR: Schuykill Metals Corporation  
Baton Rouge, Louisiana

BORING W-12  
FILE 84-184  
DATE 21 Dec. 1984  
TECHNICIAN RCZ

Note: Soil strength determined by field methods

☐ UNDISTURBED SAMPLE



STANDARD PENETRATION TEST

BORING DEPTH

37 Feet

Very soft tan silty clay with silt pockets and ferrous nodules

Stiff tan and light gray clay with silt traces and ferrous nodules

Stiff tan and light gray clay with silt pockets and ferrous nodules

Stiff tan and light gray clay with silt streaks, pockets, and ferrous nodules

Stiff tan and light gray clay with silt lenses, streaks, pockets, and 1½ inch silt layer

Stiff tan and light gray clay with silt lenses, silt streaks, and pockets

Stiff tan and light gray slightly sandy clay with sand lenses, sand streaks, and pockets



PROJECT: Monitor Well Installation  
Baton Rouge, Louisiana

FOR: Schuykill Metals Corporation  
Baton Rouge, Louisiana

BORING N 13  
FILE 84-184  
DATE 7 Dec. 1984  
TECHNICIAN RM

Note: Soil strength determined by field methods

☐ UNDISTURBED SAMPLE



STANDARD PENETRATION TEST

BORING DEPTH 50 Feet

0  
1  
2  
3  
4  
5 Medium tan silty clay with 1 inch clayey silt layer, silt streaks, and ferrous nodules

6  
7  
8  
9  
10 Medium tan silty clay with 1½ inch and 1 inch silt layers

11  
12  
13  
14  
15 Medium tan and light gray clay with silt pockets and ferrous nodules

16  
17  
18  
19  
20 Stiff tan and light gray clay with silt pockets

21  
22  
23  
24  
25 Stiff tan and light gray clay with 4 inch silt layer and silt streaks

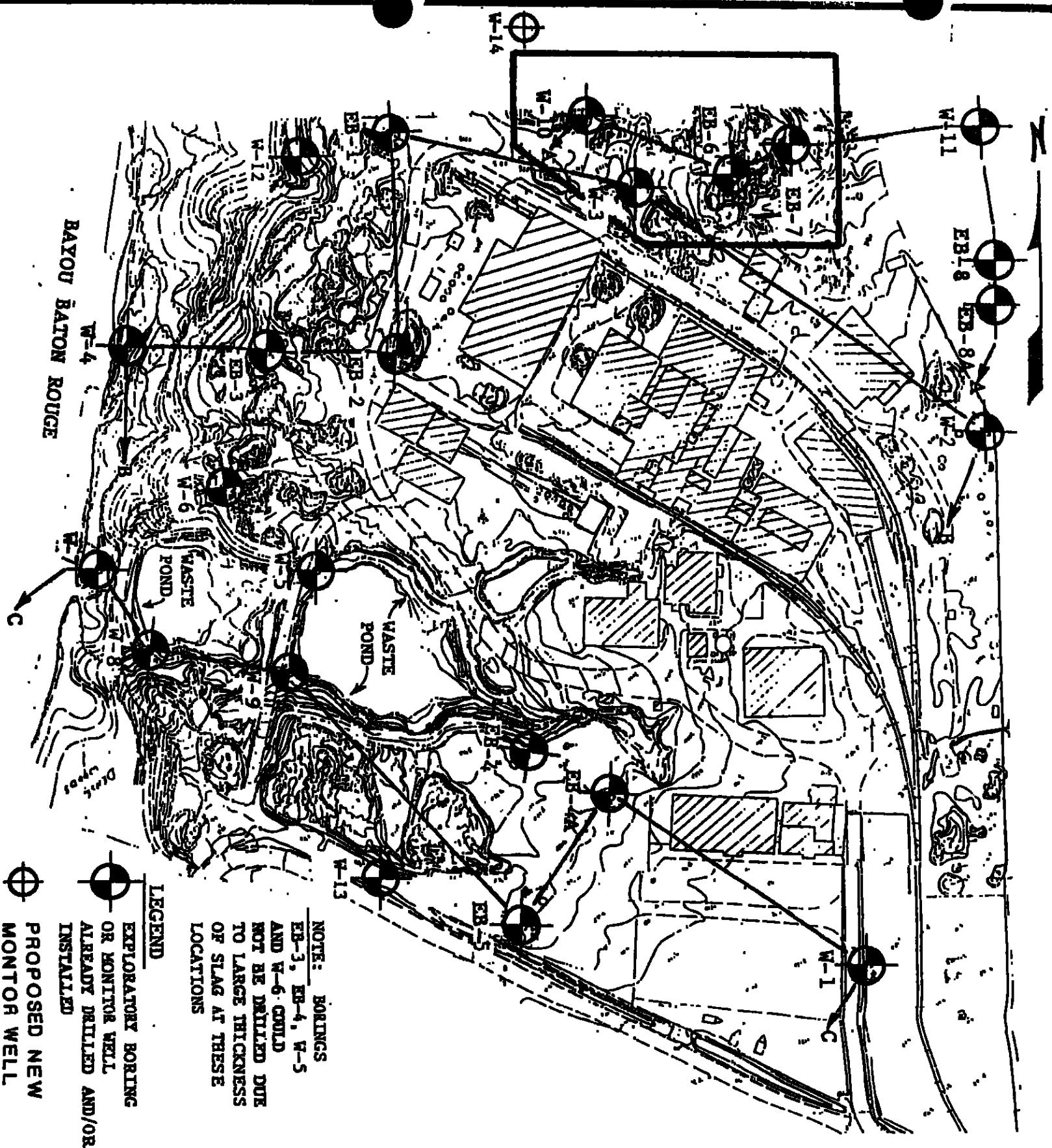
26  
27  
28  
29  
30 Very stiff tan and light gray clay

31  
32  
33  
34  
35 Very stiff tan and light gray clay with silt traces

36  
37  
38  
39  
40 Very stiff tan and light gray clay with silt traces and calcareous nodules

41  
42  
43  
44  
45 Very stiff tan and light gray clay

46  
47  
48  
49  
50 Very stiff tan and light gray clay with silt streaks and calcareous nodules

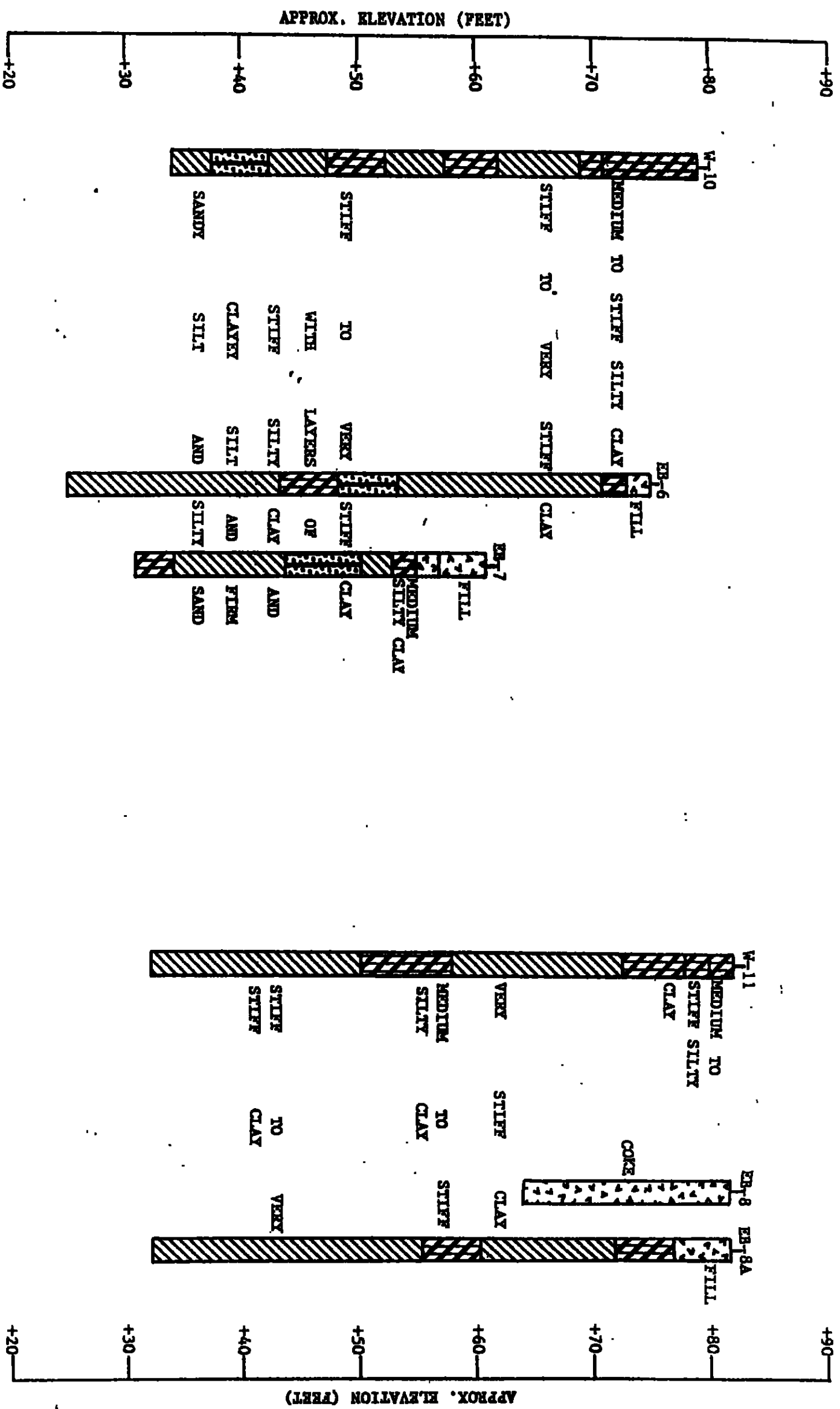



|   |  |
|---|--|
| <b>EXISTING LEAD PRODUCTION PLANT</b><br><b>BATON ROUGE, LOUISIANA</b><br><b>WOODWARD-CLYDE CONSULTANTS</b><br><b>CONSULTING ENGINEERS</b><br><b>BATON ROUGE, LOUISIANA</b> |  |
| <b>SCHUYLKILL METALS</b><br><b>BATON ROUGE, LOUISIANA</b>   | <b>DATE: 11/14/85</b><br><b>BY: J.A.L.</b><br><b>CHECKED BY: C.D.</b><br><b>DATE: 11/15/85</b> |
| <b>SITE PLAN AND BORING LOCATIONS</b>   |  |

FIGURE J-2

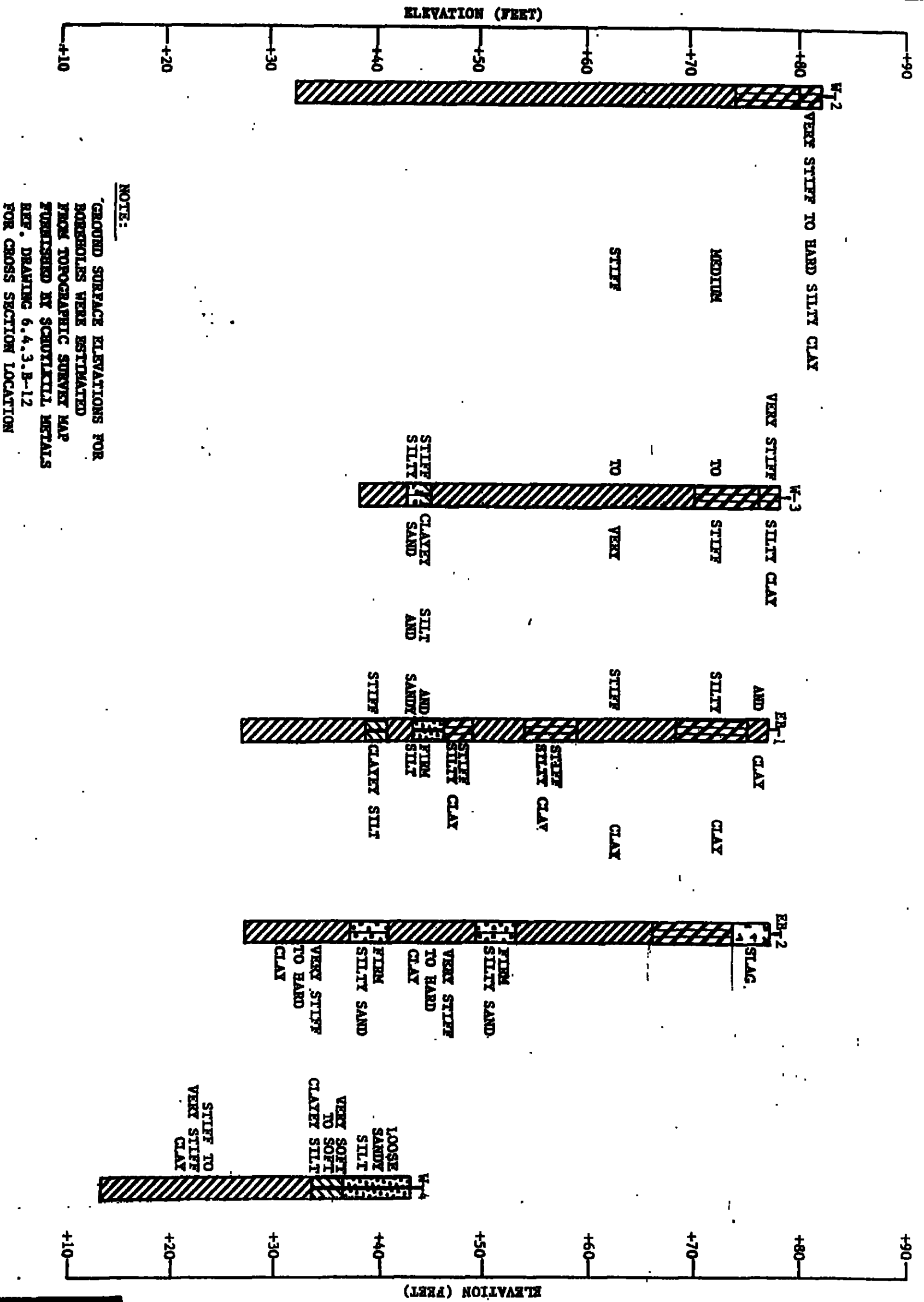
GROUND SURFACE ELEVATIONS FOR BORNEOLES WERE ESTIMATED FROM TOPOGRAPHIC SURVEY MAP FURNISHED BY SCIENTIFICAL METALS REF. DRAWING 6.4.3.B-12 FOR CROSS SECTION LOCATION

GENERALIZED SUBSURFACE SOIL PROFILE A-A  
APPROX. HORIZONTAL SCALE: 1"=100



|  |   |   |   |
|--|---|---|---|
|  <p>EXISTING LEAD<br/>PRODUCTION PLANT<br/>BATON ROUGE, LOUISIANA</p> | <p>WOODWARD-CLYDE CONSULTANTS<br/>CONSULTING ENGINEERS<br/>BATON ROUGE, LOUISIANA</p> | <p>SCHUYLKILL METALS<br/>BATON ROUGE, LOUISIANA</p> | <p>MADE BY <b>A-4</b><br/>ORDERED BY <b>A-4</b><br/>DATE <b>11/14/85</b><br/>DATE <b>11/15/85</b><br/>PLD NO.</p> |
| <p>SUBSURFACE SOIL PROFILE</p>   |   |   |   |
| <p>A-A</p>   |   |   |   |

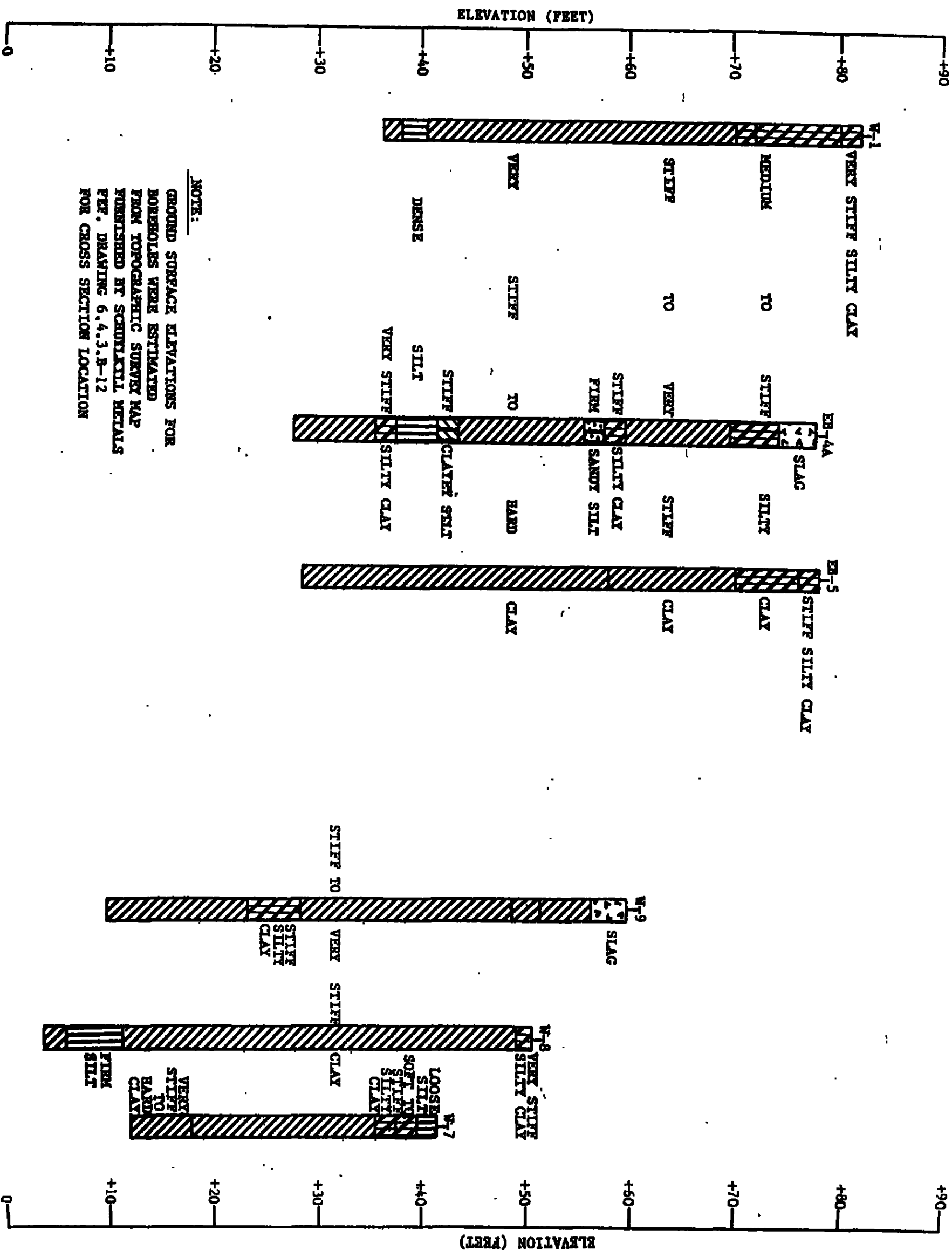
**FIGURE J-3**



NOTE:  
GROUND SURFACE ELEVATIONS FOR  
BOREHOLES WERE ESTIMATED  
FROM TOPOGRAPHIC SURVEY MAP  
FURNISHED BY SCHUYLKILL METALS  
REF. DRAWING 6.4.3.B-12  
FOR CROSS SECTION LOCATION

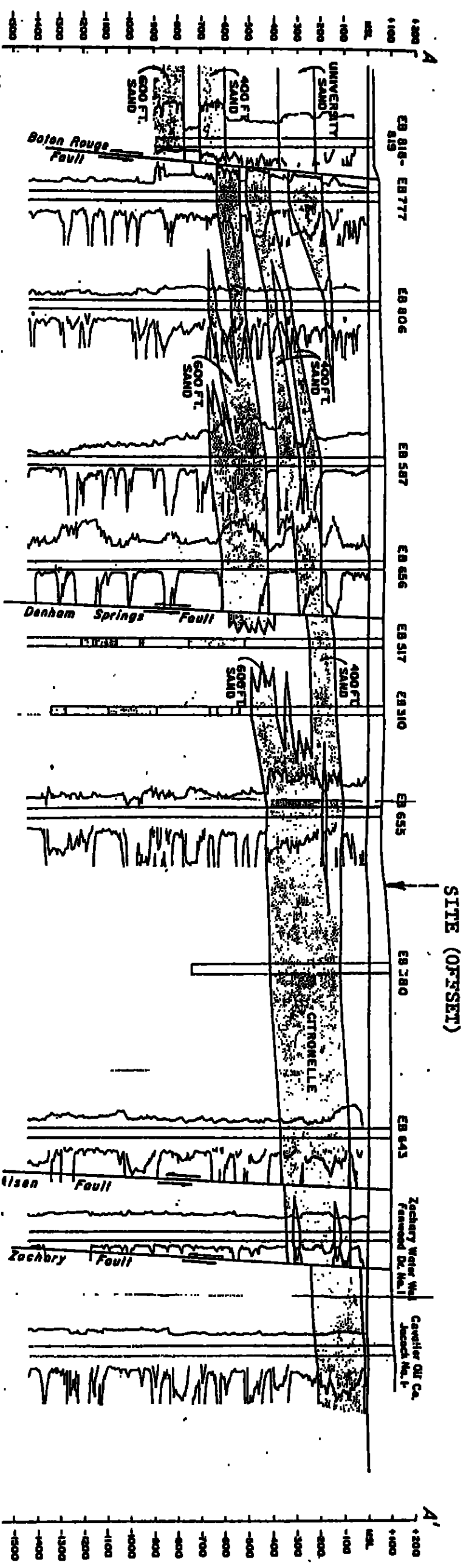
GENERALIZED SUBSURFACE SOIL PROFILE B-B  
APPROX. HORIZONTAL SCALE: 1"=150'

|  |                |
|--|----------------|
| <b>EXISTING LEAD<br/>PRODUCTION PLANT<br/>BATON ROUGE, LOUISIANA</b>         |                |
| WOODWARD-CLYDE CONSULTANTS<br>CONSULTING ENGINEERS<br>BATON ROUGE, LOUISIANA |                |
| SCHUYLKILL METALS<br>BATON ROUGE, LOUISIANA                                  |                |
| DATE: 11/14/83<br>BY: C.D.   | SCALE: 1"=150' |
| SUBSURFACE SOIL PROFILE<br>B-B   |                |

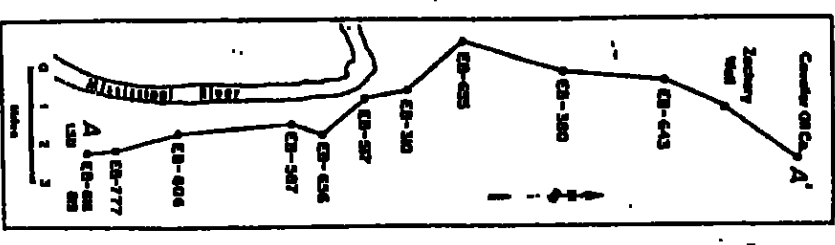


GENERALIZED SUBSURFACE SOIL PROFILE C-C  
APPROX. HORIZONTAL SCALE: 1"=150'

|  |  |
|--|--|
| <p><b>EXISTING LEAD PRODUCTION PLANT</b><br/>BATON ROUGE, LOUISIANA</p>                      |  |
| <p><b>SCHUYLKILL METALS</b><br/>BATON ROUGE, LOUISIANA</p>                                   |  |
| <p><b>WOODWARD-CLYDE CONSULTANTS</b><br/>CONSULTING ENGINEERS<br/>BATON ROUGE, LOUISIANA</p> |  |
| <p>DATE: 11/14/85<br/>DRAWN BY: J.C.D.<br/>CHECKED BY: J.C.D.</p>                            | <p>DATE: 11/14/85<br/>SCALE: 1"=150'</p> |
| <p>SUBSURFACE SOIL PROFILE C-C</p>   |  |



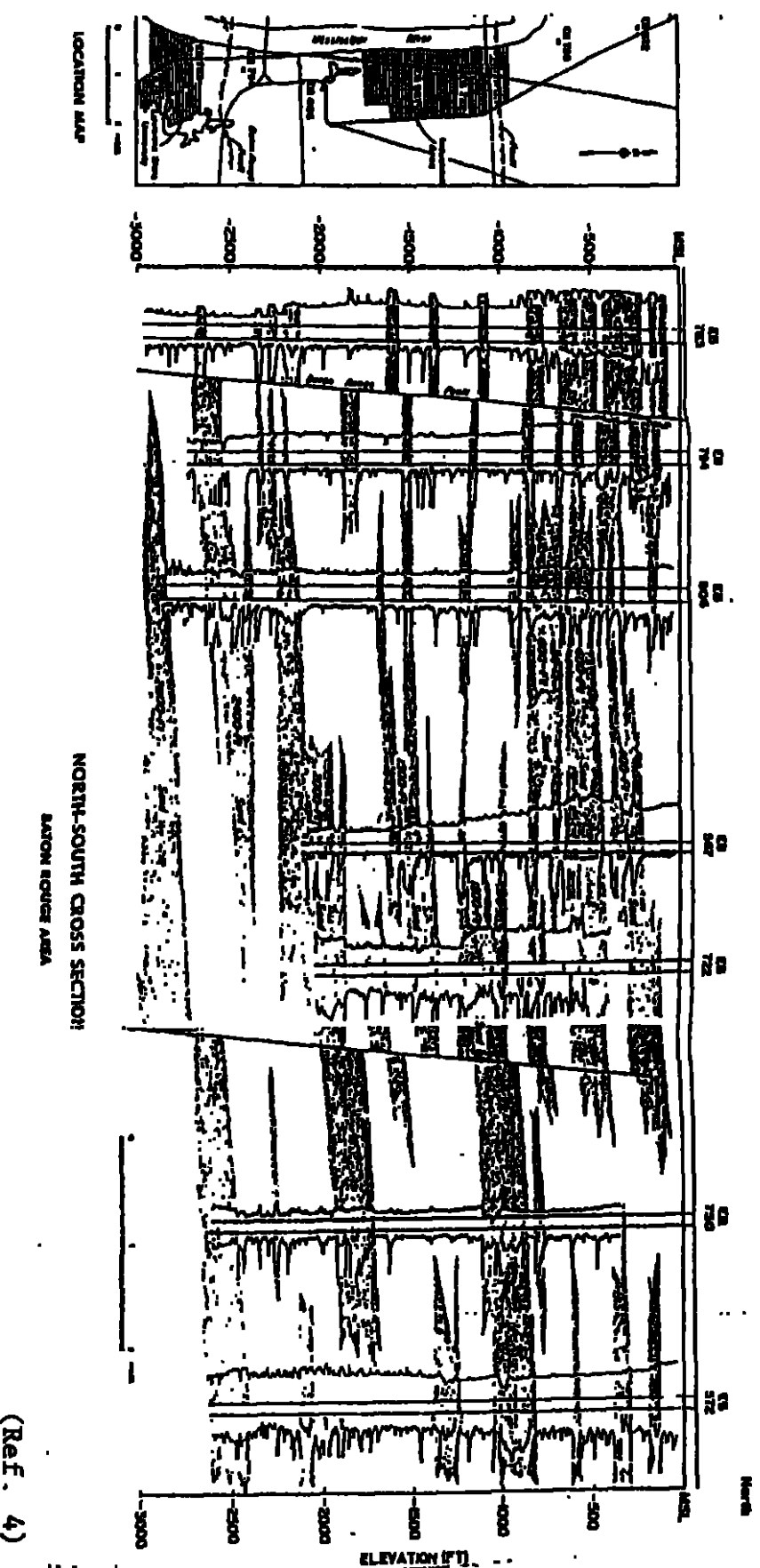
(Ref. 7)



NOTE: SITE IS WEST  
OF CROSS SECTION

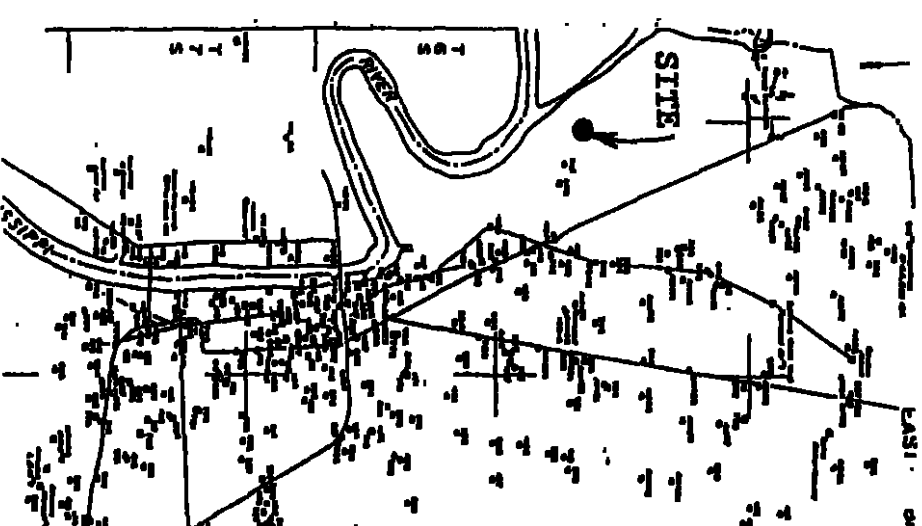
**SUBSURFACE SOIL CONDITIONS BASED ON NEARBY WATER WELL LOGS**

|  |                        |
|--|------------------------|
| <p><b>EXISTING LEAD<br/>PRODUCTION PLANT<br/>BATON ROUGE, LOUISIANA</b></p>                  |                        |
| <p><b>WOODWARD-CLYDE CONSULTANTS<br/>CONSULTING ENGINEERS<br/>BATON ROUGE, LOUISIANA</b></p> |                        |
| <p><b>SCHUYLKILL METALS<br/>BATON ROUGE, LOUISIANA</b></p>                                   |                        |
| <p>DATE: 11/14/85</p>  | <p>BY: [Signature]</p> |
| <p><b>SUBSURFACE SOIL CONDITIONS<br/>BASED ON NEARBY WATER<br/>WELL LOGS</b></p>             |                        |



| PERMEABILITY DATA IN SANDS |                                     |
|----------------------------|-------------------------------------|
| SAND                       | PERMEABILITY (gpd/ft <sup>2</sup> ) |
| 1200-FT                    | 560                                 |
| 1500-FT                    | 1060                                |
| 2000-FT                    | 1250                                |

# SUBSURFACE SOIL CONDITIONS BASED ON WATER WELL LOGS IN CENTRAL BATON ROUGE



|  |   |
|--|---|
| EXISTING LEAD<br>PRODUCTION PLANT<br>BATON ROUGE, LOUISIANA                  |   |
| WOODWARD-CLYDE CONSULTANTS<br>CONSULTING ENGINEERS<br>BATON ROUGE, LOUISIANA |   |
| SCHUYLKILL METALS<br>BATON ROUGE, LOUISIANA                                  |   |
| NAME: A.L.<br>CHECKED BY: J.B.<br>DATE: 11/14/85<br>SCALE: 1"=100'           | DRAWN: 11/15/85<br>SUBSURFACE SOIL CONDITIONS<br>BASED ON WATER WELL LOGS<br>IN CENTRAL BATON ROUGE |

FIGURE J-7

GEOTECHNICAL SERVICES  
GROUND WATER QUALITY MONITORING  
PLANT FACILITIES  
BATON ROUGE, LOUISIANA



FOR:  
SCHUYLKILL METALS CORPORATION  
BATON ROUGE, LOUISIANA

JANUARY 1985

**LOUIS J. CAPOZZOLI & ASSOCIATES, INC.**  
**Geotechnical Engineers**





**LOUIS J. CAPOZZOLI & ASSOCIATES, INC. Geotechnical Engineers**

Dr. Louis J. Capozzoli, Jr. P.L.  
Glynn P. Gautreau P.E.  
James M. Aronstein Jr. P.L.  
Charles W. Hair III P.E.

31 January 1985

Schuykill Metals Corporation  
P. O. Box 73916  
Baton Rouge, Louisiana 70807

Attention: Mr. Glenn Hasse

Re: Geotechnical Services  
Ground Water Quality Monitoring  
Plant Facilities  
Baton Rouge, Louisiana  
Our File: 84-184

Gentlemen:

This report summarizes geotechnically related work performed onsite by us during the past 2 months. The original project scope is stated in our 8 November 1984 proposal. Scope augmentation was developed in subsequent meetings and telephone conversations with you.

PROJECT DESCRIPTION

Services by us at this existing plant fell into 2 categories:

- Installation, development, and flow (slug) testing of 2 ground water quality monitor wells.
- Conduct of 12 shallow probe borings along the route of a soon to be constructed clay permeability barrier (cutoff wall).

The attached sheet 1 depicts locations of the wells and probe borings. In both cases, our work extended engineering study/ground water quality master planning for you by others. The following paragraphs detail our efforts.

MONITOR WELL INSTALLATION

Construction. The 2 wells installed by us consist of 2 inch diameter, schedule 40, screw jointed PVC casing surmounting a like diameter, 10 foot long section of .010 inch slotted PVC well screen. Installed screen bottom depths are 45 and 35 feet in Wells 1 and 2 (our numbers), respectively. Each well is fitted with a PVC lysimeter (cap) having 2 inlets. A 1/2 inch diameter screw

jointed PVC tube, extending to the screen bottom level inside the well casing, is affixed to one inlet. Externally, the well screen is surrounded by a tremie placed granular soil (sand and pea gravel) packing. An annulus grout seal, extending from the packing top to the ground surface, anchors a lockable steel security guard. Sheet 2 shows well construction particulars.

Installation. Well 1 installation took place on 7 and 8 December 1984. Well 2 was set during the period 21 through 26 December. A total of 6 drilling rig/crew hours were required. Site surface condition required use of a bullozer, provided by you, to station our drill rig onsite. Such difficult trafficability caused 3 hours of drill rig/crew standby.

Borehole advancement was by the rotary washbore method using equipment which had just been steam cleaned. Initial borehole diameter was 4 inches. This was later reamed to 6 inches to accommodate well placement.

During conduct of each boring, we obtained high quality undisturbed soil samples for use in laboratory analyses. The sampling technique involved hydraulically pushing a 30 inch long, 3 inch O.D., thinwall Shelby tube sampler into the ground a distance of 24 inches per sample. Applicable ASTM standards were adhered to during this process. Such sampling was on 5 foot centers for the 50 foot depth of boring 1 (Well 1) and the 37 foot depth of boring 2 (Well 2). The detailed borehole logs are attached.

Soil Profile. Upon recovery, all samples were classified in the field by our technician and then returned to our laboratory for testing. Detailed laboratory analyses, conducted on each undisturbed specimen to establish soil profile correspondence with your other onsite wells, involved 17 unit weight/moisture content determinations plus visual classification. Again, ASTM standards governed performance. Results are on table 1.

Topographic map study reveals the ground surface elevation at Well 1 approximates 78 feet, NGVD; that at Well 2, 45 feet, NGVD. The sheet 1 soil profile shows a 5 to 15 foot thick soft to medium strength silty clay surface covering overlies stiff to very stiff strength Pleistocene age clay with silt streaks. Surface cover is thinnest at Well 2 and contains appreciable silt (relatively pervious granular soil) sub layers and pockets there.

Well Evaluation. After installation, the ground water level stabilized in Well 1 at almost 27 feet below the surrounding ground surface. Such stabilized level in Well 2 was about 2 feet.

Once each well's annular grout seal had set, our technicians conducted a water inflow test in conjunction with well development. The latter procedure - performed to insure a clean, free flowing installation - involved purging drilling fluids, etc., by successively evacuating the well to the screen bottom and then surging (refilling) with potable water. Well excavation was

accomplished by pressurizing the casing interior with air through one lysimeter opening while allowing water drainage from the adjacent hole (connected to the 1/2 inch diameter tubing). Such process was repeated a minimum of 3 times or until clear return water was obtained. Following the final evacuation, the rate of water level rise is each well's casing (to the stabilized level) was measured. This constituted the water inflow test. Procedural details are in Daily Field Reports 1 and 2. Figure 1 depicts, for both wells, water rise versus logarithmic time.

Evaluation of inflow data indicates permeability coefficients (k) of  $2.3 \times 10^{-5}$  and  $3.4 \times 10^{-4}$  cm/sec for Wells 1 and 2, respectively. These values - based on equations by Hvorslev, 1949 - are much larger than is normally the case for clay because of the thin, probably interconnected, horizontal lenses of silt within the nearly impermeable Pleistocene clay mass.

#### PROBE BORINGS

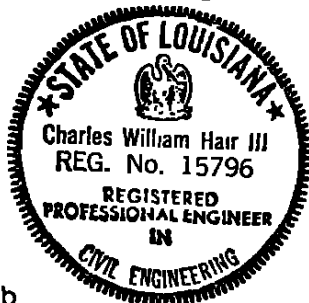
Locations of 12 auger borings, conducted on 27 and 28 December 1984, are shown by sheet 1. These are designated 3 through 14 to extend the numbering system begun with the monitor wells. Such exploration's purpose was to field check the surface silt layer's thickness: an individual borehole was advanced until at least 4 feet of penetration into the underlying impermeable clay. Total footage of these borings was 154. Upon completion, all boreholes were grout sealed full depth to insure site impermeability restoration. The field logs are attached.

Classification samples, obtained for the full depth of each boring, were visually evaluated in the field. Findings were given to your onsite representative. No laboratory testing was accomplished. The resulting soil profile is on sheet 1.

Probe boring conduct required 10 hours of drill crew time, 2 drill crew trips to the site, 2 sacks of bentonite, and 6 sacks of Portland cement.

#### SUMMARY

Geotechnical services described by this report resulted in installation and permeability evaluation of 2 ground water quality monitor wells plus confirmation of near surface soil stratigraphy. Details are in the report main body and attendant enclosures.



Very truly yours,

LOUIS J. CAPOZZOLI & ASSOCIATES, INC.

  
Charles W. Hair, III

CWH, III/srb

Enclosures: Daily Field Reports 1 and 2  
Sheet 1, Boring Plan and Soil Profile  
Sheet 2, Monitor Well Configuration  
Figure 1, Well Inflow Test Results  
Table 1, Laboratory Data  
Logs of Borings 1 through 14

DAILY FIELD REPORT NO. 1

Date: 22 JAN 85

Job Name and No.:

Inspector: B. STALEY, R ZAPATA

Contractor:

84-184

Hours Worked — From: 0730 to 1215

No. Men on Site: 2

Temp. Range: 30'S

Weather: CLEAR

Visitors: 0

ARRIVED ON SITE THIS MORNING, 2030 WAS  
UNABLE TO DRIVE UP TO EARTH'S SURFACE. DROVE BACK TO THE OFFICE TO GET A  
WATER AND AIR HOSES TO REPAIR THE PUMP.

ARRIVED BACK ON SITE AT 1300 AND SET UP TO  
BLOW OUT THE DOWNSIDE WELL. DEPTH OF WATER  
BEFORE BLOWOUT WAS 3' 5 1/4". THIS WELL WAS  
BLOWN OUT AND CLEAN AT 1405, AT WHICH TIME READINGS  
WERE TAKEN ON THE WATER LEVEL, INSIDE THE WELL.

READING, ON RETURNING, WATER LEVEL:

|        |           |                   |
|--------|-----------|-------------------|
| 0 MIN  | 31' 1/2"  | from K.P. on 1405 |
| 2 MIN  | 23' 3"    | "                 |
| 4 MIN  | 14' 8"    | "                 |
| 8 MIN  | 7' 4"     | "                 |
| 12 MIN | 3' 7 1/2" | "                 |
| 20 MIN | 3' 4"     | "                 |
| 24 MIN | 3' 4"     | "                 |

\* AT 25 MIN WATER LEVEL @ 3' 5 1/4"

RETURNED BACK TO OFFICE AFTER 1415 HRS.

B. STALEY

ON SITE / OFFICE - 6 1/2 HRS.  
TRIP - 2 HRS.  
TOTAL - 8 1/2

Note any instructions given to contractor:

DAILY FIELD REPORT NO. 2

Date: 23 JUN 85

Job Name and No.:

Inspector: B. STANLEY 2 ZAPATA 84-184

Contractor:

Hours Worked — From: 0730 to 1500

No. Men on Site: 2

Temp. Range: 40's

Weather: WINDY, CLOUDY

Visitors: 0

ARRIVED ON SITE AND STARTED WORKING ON THE TOP-SLOPE  
WELL @ 0930. THE WELL WAS MOWED OUT AND CLEARED  
AT 1040, AT WHICH TIME WE STOPPED TAKING READINGS ON THE  
RETURNING WATER LEVEL. READINGS ARE LISTED ON SHEETS  
2 AND 3 OF THIS REPORT.  
RETURN BACK TO OFFICE.

ON SITE / OFFICE - 6 1/2 HRS  
TRAVEL - 1 HR  
TOTAL - 7 1/2 HRS

B. STANLEY

Note any instructions given to contractor:

Subject WELL DEVELOPMENTSheet 2 Of 3Made by JAMES Date 23 JUN 85File No. 84-184

Checked by \_\_\_\_\_ Date \_\_\_\_\_

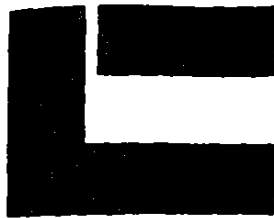
LOUIS J. CAPOZZOLI &amp; ASSOCIATES, INC. Geotechnical Engineers

DEPTH of WATER BEFORE BLOWOUT of WELL 28' 10"

WELL WAS BLOWN OUT @ 1040 WITH A WATER LEVEL  
of 45' 6"

READING of RETURNING WATER:

|         |                         |
|---------|-------------------------|
| 0 MIN   | 45' 6" FROM TOP of TUBE |
| 1 MIN   | 44' 11"                 |
| 2 MIN   | 44' 7 1/2"              |
| 4 MIN   | 44' 1 1/4"              |
| 8 MIN   | 42' 9 1/4"              |
| 16 MIN  | 40' 6 1/4"              |
| 32 MIN  | 38' 0"                  |
| 64 MIN  | 36' 0"                  |
| 84 MIN  | 35' 11 1/2"             |
| 104 MIN | 33' 10"                 |
| 114 MIN | 32' 11"                 |
| 124 MIN | 32' 3"                  |
| 134 MIN | 31' 8"                  |
| 144 MIN | 31' 1/2"                |
| 164 MIN | 30' 3 1/2"              |
| 174 MIN | 30' 0"                  |
| 184 MIN | 29' 8"                  |
| 194 MIN | 29' 5"                  |



Subject WELL LOGGING

Sheet 2 Of 2

Made by STANBY Date 23 JUN 84

File No. 84-184

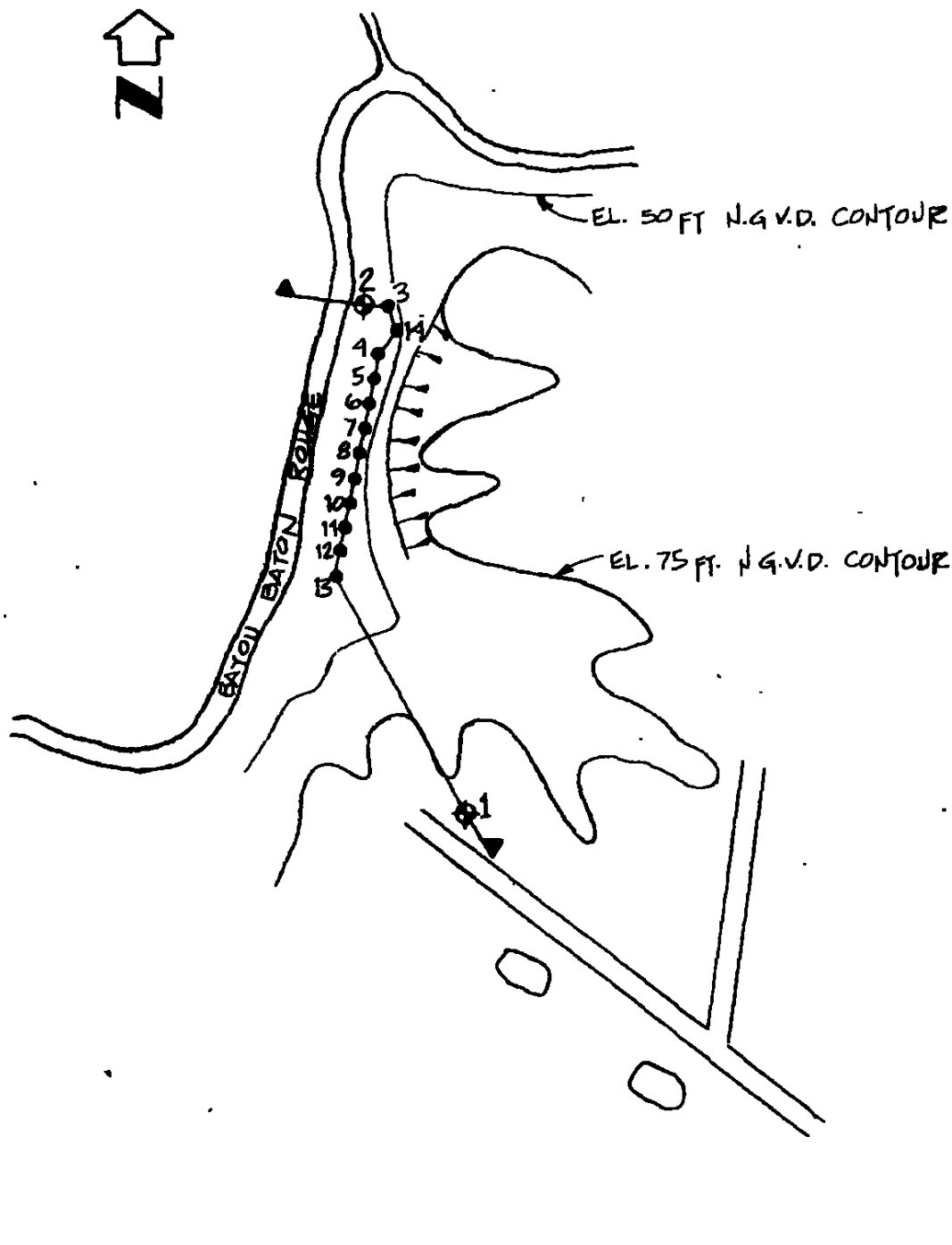
Checked by \_\_\_\_\_ Date \_\_\_\_\_

LOUIS J. CAPOZZOLI & ASSOCIATES, INC. Geotechnical Engineers

READING, ON REVISION: 23 JUN 84

|         |         |                  |
|---------|---------|------------------|
| 204 MIN | 29' 3"  | FROM TOP OF TIDE |
| 214 MIN | 29' 4"  |                  |
| 219 MIN | 29' 1"  |                  |
| 224 MIN | 28' 10" |                  |

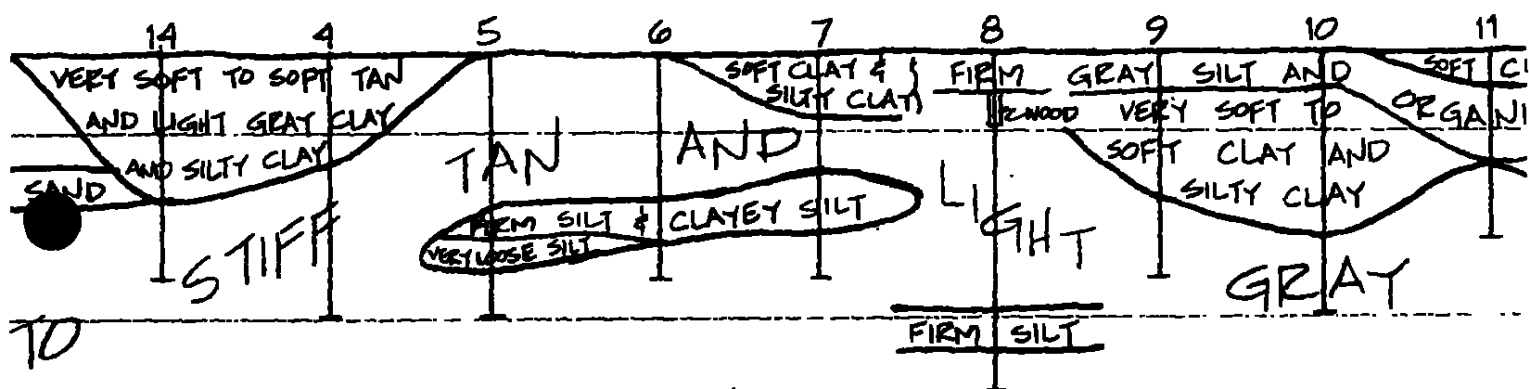




# BORING PLAN

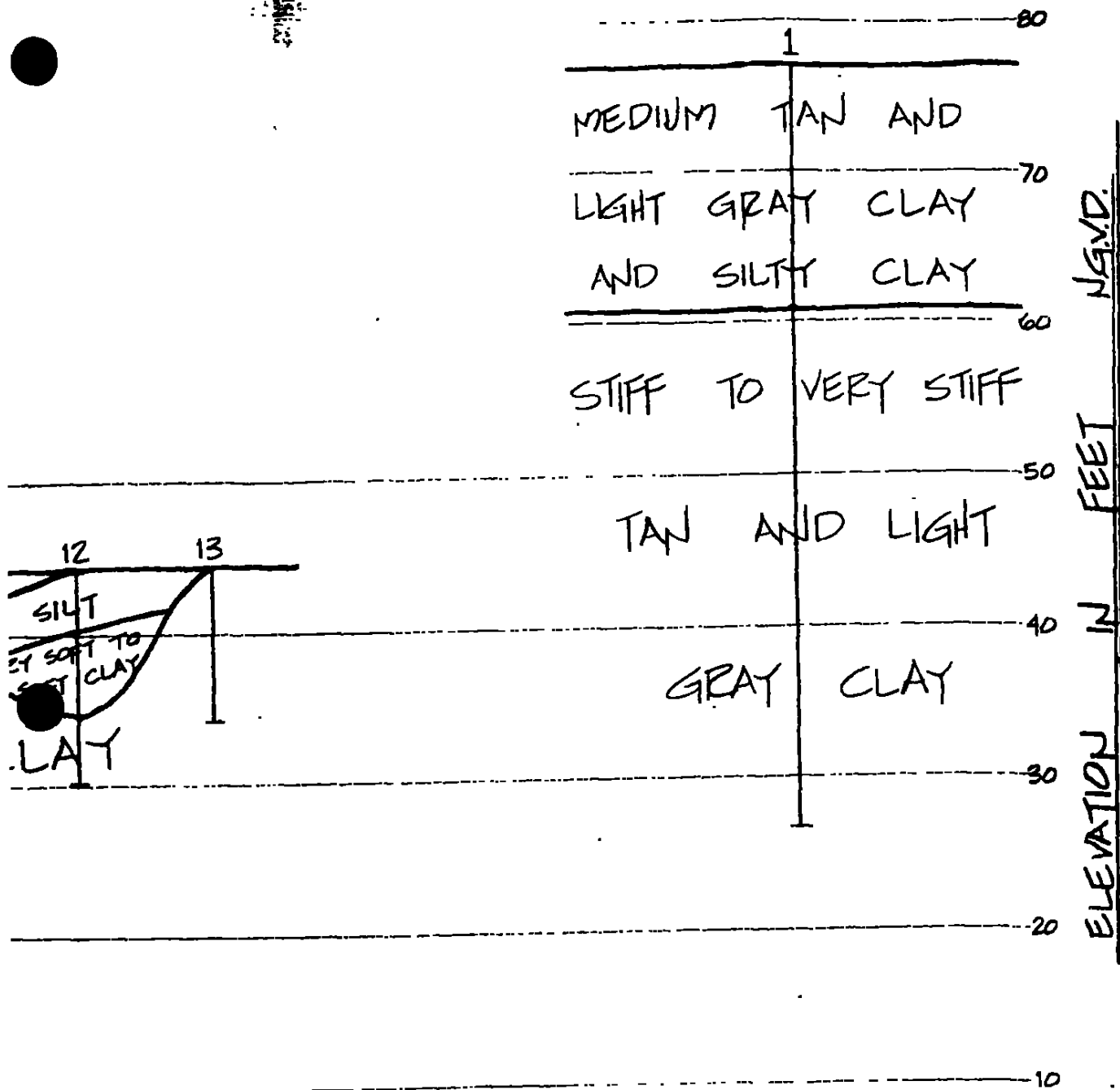
APPROXIMATE SCALE: 1" = 300'

ADAPTED FROM: U.S. GEOLOGICAL SURVEY QUADRANGLE  
 MAP OF SCOTLANDVILLE, LA., 7.5 MINUTE  
 SERIES, PUBLISHED 1963, PHOTO REVISED  
 1970 AND 1980.



## SOIL PROFILE

- NOTES:
- 1- SOIL STRATIFICATIONS SHOWN BETWEEN BORINGS ARE THEY MAY OR MAY NOT AGREE WITH THE ACTUAL SOIL
  - 2- SOIL STRENGTH DETERMINATION IN ALL BORINGS VIA FIELD
  - 3- SOIL CLASSIFICATIONS IN BORINGS 3 THROUGH 14 VIA FIELD



E

NECESSARY INTERPOLATIONS.  
ADDITIONS OUTSIDE OF THE BORINGS.

METHODS.  
METHODS.

SCHUYLKILL METALS CORPORATION  
BATON ROUGE, LOUISIANA

LOUIS J. CAPOZZOLI & ASSOCIATES, INC.  
GEOTECHNICAL ENGINEERS  
BATON ROUGE, LOUISIANA

DATE: 3/24/85  
SHOWN: CWH 3/24/85 2A-184

BORING PLAN 410  
SOIL PROFILE 1

Subject MONITOR WELL

Sheet 2 OF 2

CONFIGURATION

Mark by KGA Date 31 JAN 85

File No. 84-184

Checked by CWH Date 31 JAN 85

LOUIS J. CAPOZZOLI & ASSOCIATES, INC. Geotechnical Engineers

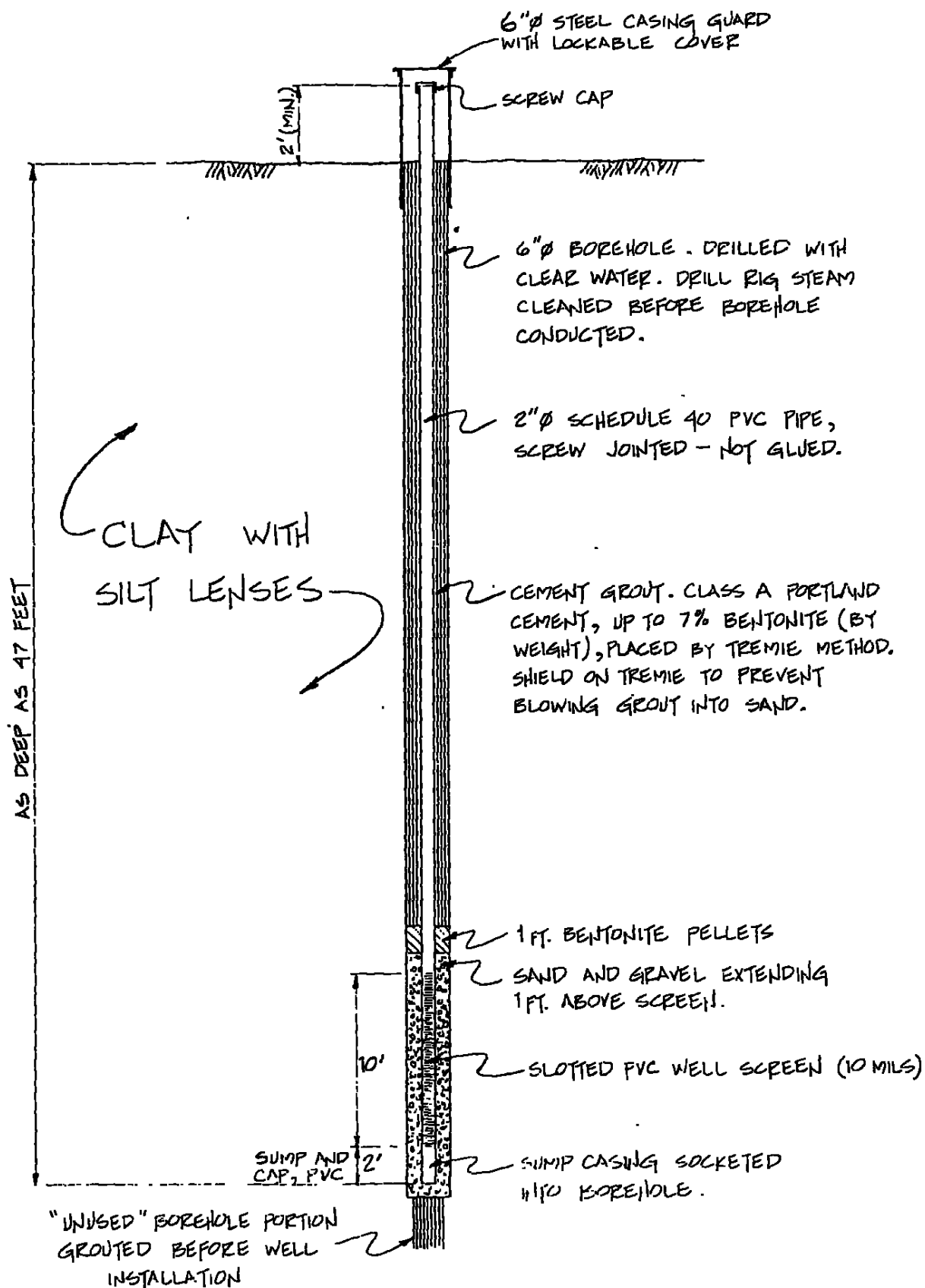
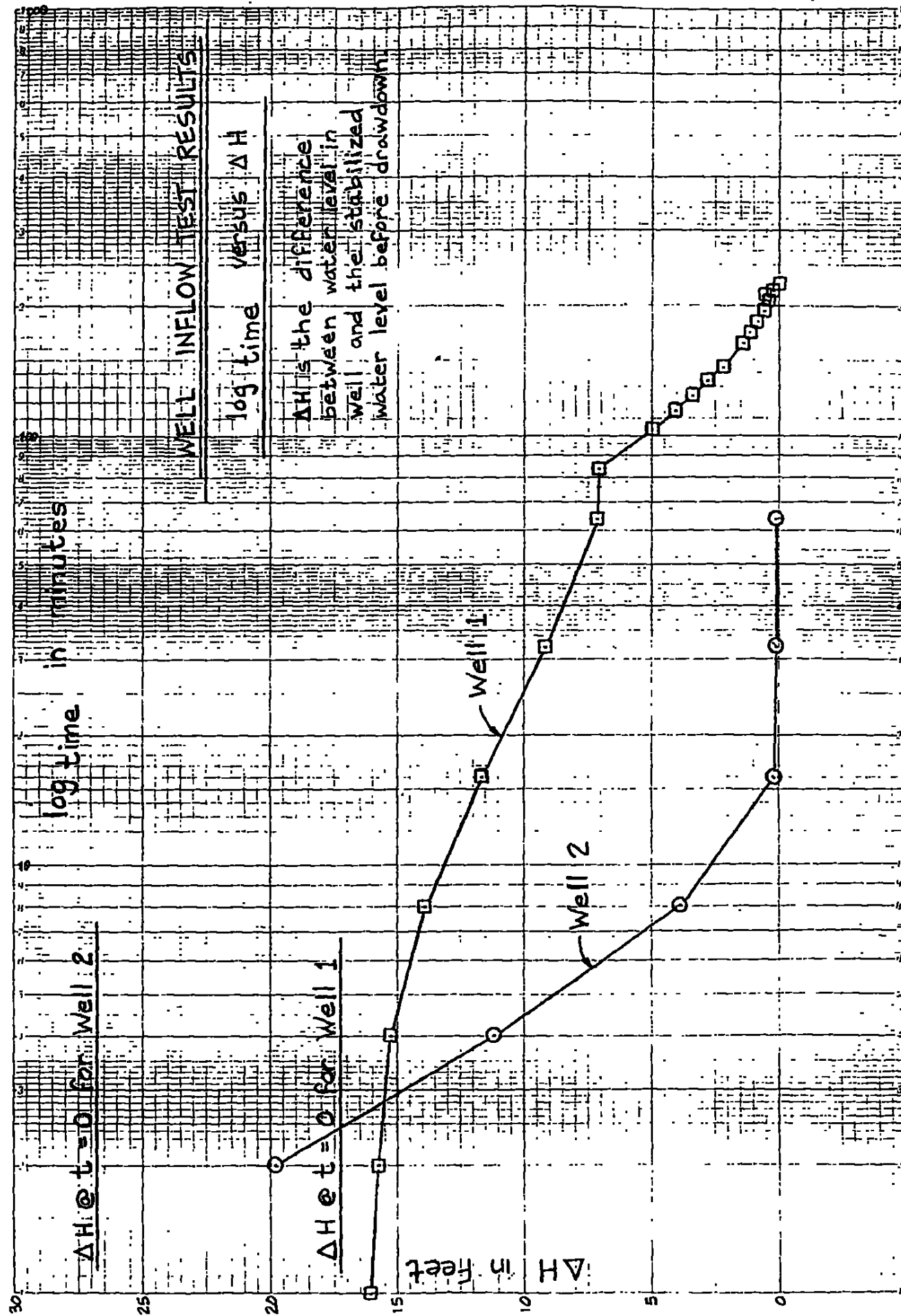


FIGURE 1





# LOG OF BORING

PROJECT: Monitor Well Installation  
Baton Rouge, Louisiana

FOR: Schuykill Metals Corporation  
Baton Rouge, Louisiana

BORING 1  
FILE 84-184  
DATE 7 Dec 1984  
TECHNICIAN RM

Note: Soil strength determined by field methods

☐ UNDISTURBED SAMPLE ☒ STANDARD PENETRATION TEST BORING DEPTH 50 Feet

| DEPTH<br>FEET | SAMPLES |  |
|---------------|---------|--|
| 0             |         |  |
| 5             |         | Medium tan silty clay with 1 inch clayey silt layer, silt streaks, and ferrous nodules |
| 10            |         | Medium tan silty clay with 1½ inch and 1 inch silt layers                              |
| 15            |         | Medium tan and light gray clay with silt pockets and ferrous nodules                   |
| 20            |         | Stiff tan and light gray clay with silt pockets  |
| 25            |         | Stiff tan and light gray clay with 4 inch silt layer and silt streaks                  |
| 30            |         | Very stiff tan and light gray clay   |
| 35            |         | Very stiff tan and light gray clay with silt traces                                    |
| 40            |         | Very stiff tan and light gray clay with silt traces and calcareous nodules             |
| 45            |         | Very stiff tan and light gray clay   |
| 50            |         | Very stiff tan and light gray clay with silt streaks and calcareous nodules            |

# LOG OF BORING

PROJECT Monitor Well Installation  
Baton Rouge, Louisiana

FOR Schuykill Metals Corporation  
Baton Rouge, Louisiana

BORING 2  
FILE 84-184  
DATE 21 Dec. 1984  
TECHNICIAN RCZ

Note: Soil strength determined by field methods

UNDISTURBED SAMPLE ☒ STANDARD PENETRATION TEST BORING DEPTH 37 Feet

| DEPTH<br>FEET | SAMPLES |  |
|---------------|---------|--|
| 0             |         |  |
| 5             |         | Very soft tan silty clay with silt pockets and ferrous nodules                           |
| 10            |         | Stiff tan and light gray clay with silt traces and ferrous nodules                       |
| 15            |         | Stiff tan and light gray clay with silt pockets and ferrous nodules                      |
| 20            |         | Stiff tan and light gray clay with silt streaks, pockets, and ferrous nodules            |
| 25            |         | Stiff tan and light gray clay with silt lenses, streaks, pockets, and 1½ inch silt layer |
| 30            |         | Stiff tan and light gray clay with silt lenses, silt streaks, and pockets                |
| 35            |         | Stiff tan and light gray slightly sandy clay with sand lenses, sand streaks, and pockets |
| 40            |         |  |



# LOG OF BORING

PROJECT Probe Borings  
Baton Rouge, Louisiana

FOR Schuykill Metals Corporation  
Baton Rouge, Louisiana

BORING 3  
FILE 84-184  
DATE 27 Dec. 1984  
TECHNICIAN RCZ

DEPTH FEET SAMPLES ☐ Classification Sample (not retained for laboratory testing)

☒ UNDISTURBED SAMPLE ☒ STANDARD PENETRATION TEST BORING DEPTH 12 Feet

0 Stiff tan and light gray clay with silt streaks, pockets, and ferrous nodules

Medium tan and light gray slightly silty clay with silt streaks, pockets, and ferrous nodules

5 Medium tan and light gray slightly silty clay with silt streaks, pockets, ferrous nodules, and 2 inch sand layer

Firm light gray sand

10 Stiff tan and light gray clay with silt streaks, pockets, and ferrous nodules

Stiff tan and light gray clay with silt streaks, pockets, and ferrous nodules

Boring 4

Boring Depth 14 Feet

0 Soft gray clay with silt streaks, pockets, and organic matter

Soft tan and light gray clay with silt streaks, pockets, and ferrous nodules

5 Soft tan and light gray clay with silt streaks, pockets, and ferrous nodules

Stiff tan and light gray clay with silt streaks, pockets, and ferrous nodules

Medium tan and light gray silty clay with silt streaks, pockets, and ferrous nodules

10 Stiff tan and light gray clay with silt streaks, pockets, and ferrous nodules

Stiff tan and light gray clay with silt streaks, pockets, and ferrous nodules

# LOG OF BORING

|                 |  |  |  |                   |              |
|-----------------|--|--|--|-------------------|--------------|
| <b>PROJECT:</b> |  | Probe Borings<br>Baton Rouge, Louisiana                |  | <b>BORING:</b>    | 5            |
|                 |  |  |  | <b>FILE</b>       | 84-184       |
| <b>FOR</b>      |  | Schuykill Metals Corporation<br>Baton Rouge, Louisiana |  | <b>DATE</b>       | 27 Dec. 1984 |
|                 |  |  |  | <b>TECHNICIAN</b> | RCZ          |

|  |         |  |
|--|---------|--|
| DEPTH<br>FEET                              | SAMPLES | <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;"> <input type="checkbox"/> Classification Sample (not retained for laboratory testing)             </div> <div style="display: flex; justify-content: space-between; align-items: center;"> <div> <input type="checkbox"/> UNDISTURBED SAMPLE             </div> <div> <input checked="" type="checkbox"/> STANDARD PENETRATION TEST             </div> <div>                 BORING DEPTH      14 Feet             </div> </div> |
| 0  |         | Stiff tan and light gray clay with silt streaks, pockets, and ferrous nodules  |
|  |         | Stiff tan and light gray clay with silt streaks, pockets, and ferrous nodules  |
| 5  |         | Stiff tan and light gray clay with silt traces and ferrous nodules   |
|  |         | Stiff tan and light gray clay with silt traces and ferrous nodules   |
| 10   |         | Firm tan and light gray clayey silt  |
|  |         | Very loose tan and light gray silt   |
|  |         | Medium tan and light gray clay with silt traces and ferrous nodules  |
| 15   |         |  |
| Boring      6<br>Boring Depth      12 Feet |         |  |
| 0  |         | Stiff tan and light gray clay with silt traces and ferrous nodules   |
|  |         | Stiff tan and light gray clay with silt traces and ferrous nodules   |
| 5  |         | Stiff tan and light gray clay with silt streaks, pockets and ferrous nodules   |
|  |         | Stiff tan and light gray clay with ferrous nodules   |
| 10   |         | Firm tan and light gray clayey silt  |
|  |         | Stiff tan and light gray clay with silt traces and ferrous nodules   |
| 15   |         |  |

# LOG OF BORING

|         |  |        |              |            |        |
|---------|--|--------|--------------|------------|--------|
| PROJECT | Probe Borings<br>Baton Rouge, Louisiana                | BORING | 7            | FILE       | 34-184 |
| FOR     | Schuykill Metals Corporation<br>Baton Rouge, Louisiana | DATE   | 27 Dec. 1984 | TECHNICIAN | RCZ    |

|  |         |   |
|--|---------|---|
| DEPTH<br>FEET                                  | SAMPLES | <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;"> <input type="checkbox"/> Classification Sample (not retained for laboratory testing)             </div> <div style="display: flex; justify-content: space-between; align-items: center;"> <span><input type="checkbox"/> UNDISTURBED SAMPLE</span> <span><input checked="" type="checkbox"/> STANDARD PENETRATION TEST</span> <span>BORING DEPTH 12 Feet</span> </div> |
| 0  |         | Soft tan and light gray slightly silty clay with silt streaks, pockets, and ferrous nodules   |
|  |         | Soft tan and light gray clay with silt streaks, pockets, and ferrous nodules  |
| 5  |         | Stiff tan and light gray clay with silt traces and ferrous nodules  |
|  |         | Firm tan and light gray clayey silt   |
|  |         | Firm tan and light gray silt with 6 inch stiff clay layer   |
| 10   |         | Stiff tan and light gray clay with silt streaks, pockets, and ferrous nodules   |
| Boring <u>8</u><br>Boring Depth <u>18 Feet</u> |         |   |
| 0  |         | Firm dark gray organic silt   |
|  |         | Wood  |
| 5  |         | Stiff tan and light gray clay with silt traces and ferrous nodules  |
|  |         | Medium tan and light gray clay with silt traces and ferrous nodules   |
|  |         | Stiff tan and light gray clay with silt traces, ferrous nodules, and wood   |
| 10   |         | Stiff tan and light gray clay with silt streaks, pockets, and ferrous nodules   |
|  |         | Stiff tan and light gray clay with silt streaks, pockets, and ferrous nodules   |
| 15   |         | Firm tan and light gray silt with 5 inch stiff clay layer   |
|  |         | Stiff tan and light gray clay with silt streaks, pockets, and ferrous nodules   |
| 20   |         |   |

# LOG OF BORING

PROJECT: Probe Borings  
Baton Rouge, Louisiana

FOR: Schuylkill Metals Corporation  
Baton Rouge, Louisiana

BORING 9  
FILE 84-184  
DATE 27 Dec. 1984  
TECHNICIAN RCZ

DEPTH FEET  
0

SAMPLES

Classification Sample (not retained for laboratory testing)

UNDISTURBED SAMPLE

STANDARD PENETRATION TEST

BORING DEPTH 12 Feet

Firm dark gray organic clay

Very soft tan and light gray silty clay with silt streaks, pockets, and ferrous nodules

Very soft tan and light gray clay with silt streaks, pockets, and ferrous nodules

Soft tan and light gray clay with silt streaks, pockets, and ferrous nodules

Stiff tan and light gray clay with silt streaks, pockets, and ferrous nodules

Stiff tan and light gray clay with silt streaks, pockets, and ferrous nodules

Boring 10

Boring Depth 14 Feet

Firm dark gray organic silt

Very soft tan and light gray silty clay with silt streaks, pockets, and ferrous nodules

Very soft tan and light gray slightly silty clay with silt streaks, pockets, and ferrous nodules

Soft tan and light gray slightly silty clay with silt streaks, pockets, and ferrous nodules

Very soft tan and light gray silty clay with silt streaks, pockets, and ferrous nodules

Stiff tan and light gray clay with silt streaks, pockets, and ferrous nodules

Stiff tan and light gray clay with silt streaks, pockets, and ferrous nodules

# LOG OF BORING

|         |  |            |              |  |
|---------|--|------------|--------------|--|
| PROJECT | Probe Borings<br>Baton Rouge, Louisiana                | BORING     | 11           |  |
|         |  | FILE       | 84-184       |  |
| FOR     | Schuykill Metals Corporation<br>Baton Rouge, Louisiana | DATE       | 27 Dec. 1984 |  |
|         |  | TECHNICIAN | RCZ          |  |

|  |         |  |
|--|---------|--|
| DEPTH<br>FEET  | SAMPLES | <div style="display: flex; justify-content: space-between; align-items: flex-start;"> <div style="width: 30%;"> <div style="border: 1px solid black; width: 15px; height: 15px; margin-bottom: 5px;"></div> <div style="border: 1px solid black; width: 15px; height: 15px; margin-bottom: 5px;"></div> </div> <div style="width: 60%;"> <div style="margin-bottom: 5px;">Classification Sample (not retained for laboratory testing)</div> <div>UNDISTURBED SAMPLE      <input checked="" type="checkbox"/> STANDARD PENETRATION TEST</div> </div> <div style="width: 10%; text-align: right;">BORING DEPTH</div> </div> <div style="text-align: right; margin-top: 5px;">10 Feet</div> |
| 0  |         | Soft tan and light gray clay with silt streaks, pockets, and wood  |
|  |         | Firm tan and light gray silt with gravel   |
| 5  |         | Firm tan and light gray silt with 6 inch stiff clay layer  |
|  |         | Stiff tan and light gray clay  |
| 10   |         | Stiff tan and light gray clay  |
| <div style="display: flex; justify-content: space-between; margin-top: 40px;"> <div>Boring</div> <div>12</div> </div> <div style="display: flex; justify-content: space-between; margin-top: 10px;"> <div>Boring Depth</div> <div>14 Feet</div> </div> |         |  |
| 0  |         | Firm tan and light gray silt with roots  |
|  |         | Firm dark gray organic silt  |
| 5  |         | Very soft gray clay with organic matter  |
|  |         | Very soft gray clay with organic matter  |
|  |         | Soft tan and light gray clay with organic matter   |
| 10   |         | Stiff tan and light gray clay clay with silt streaks, pockets, and ferrous nodules   |
|  |         | Stiff tan and light gray clay with silt streaks, pockets, and ferrous nodules  |
| 15   |         |  |

• 1977

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# MONITORING WELL DIAGRAM



**PROJECT** Ground Water Monitoring System Upgrade  
Baton Rouge Facility

**FOR** Schuykill Metals Corporation  
Baton Rouge, La.

**WELL NO.** W-18  
**JOB NO.** 94-185  
**DATE** February 8, 1985  
**TECHNICIAN** J.R. Dyson

Drill Method: Auger 0 to 24'; Wet rotary 24 to 42'

Driller T. Lewis

Surface Elev. 73.8'

Initial Water Level: 23'

Rig GEFCO 1500

Total Depth - Ft. 42

| DEPTH<br>(FEET) | SAMPLE | S.P.T.<br>(Blows/Ft.)<br>or<br>Pkt. Pen.<br>(TSF) | Compressive<br>Strength<br>(TSF) | Moisture<br>Content<br>(%) | Dry Unit<br>Weight<br>(PCF) | Atterberg |    | % Passing<br>#200<br>Sieve | Symbol | MATERIAL CLASSIFICATION  | WELL<br>DIAGRAM |
|-----------------|--------|---|----------------------------------|----------------------------|-----------------------------|-----------|----|----------------------------|--------|--|-----------------|
|                 |        |   |                                  |                            |                             | LL        | PI |                            |        |  |                 |
| 0               |        |   |                                  |                            |                             |           |    |                            |        | 12" SILTY CLAY FILL with roots   |                 |
| 5               |        |   |                                  |                            |                             |           |    |                            |        | MEDIUM TO STIFF TAN AND GRAY SILTY CLAY<br>with ferrous nodules  |                 |
| 10              |        |   |                                  |                            |                             |           |    |                            |        | (CL)   |                 |
| 15              |        |   |                                  |                            |                             |           |    |                            |        | STIFF TO VERY STIFF TAN AND LIGHT GRAY<br>CLAY with silt streaks and pockets,<br>and ferrous nodules   |                 |
| 20              |        |   |                                  |                            |                             |           |    |                            |        | --- slickensided @ 15'   |                 |
| 25              |        |   |                                  |                            |                             |           |    |                            |        | (CH)   |                 |
| 30              |        |   |                                  |                            |                             |           |    |                            |        | FIRM TAN AND LIGHT GRAY CLAYEY SILT (ML)   |                 |
| 35              |        |   |                                  |                            |                             |           |    |                            |        | STIFF TO VERY STIFF TAN AND LIGHT GRAY<br>CLAY with silt streaks and pockets<br>--- slickensided @ 25' |                 |
| 40              |        |   |                                  |                            |                             |           |    |                            |        | (CH)   |                 |
| 45              |        |   |                                  |                            |                             |           |    |                            |        | TAN AND LIGHT GRAY SANDY CLAY (CL)   |                 |
| 50              |        |   |                                  |                            |                             |           |    |                            |        | STIFF TAN AND LIGHT GRAY SILTY CLAY (CL)   |                 |
|                 |        |   |                                  |                            |                             |           |    |                            |        | VERY STIFF TAN AND LIGHT GRAY CLAY with<br>silt pockets, seams, and streaks, and ferrous<br>nodules    |                 |
|                 |        |   | *                                | 21                         | 107                         | 34        | 20 | 98                         |        | (CH)   |                 |
|                 |        |   |                                  |                            |                             |           |    |                            |        | Bottom @ 42'   |                 |

NOTES:

- Shelby Tube Sample
- Soft-spoon Sample
- Auger Sample

No water rise noted - Hole closed at 21.5'.  
Hole reamed to 8" diameter.  
\* k = 4.17 x 10<sup>-7</sup> cm/sec

- Bentonite-cement Grout
- Bentonite Pellets
- Filter Sand

SOILS AND FOUNDATION ENGINEERS, INC.

# MONITORING WELL DIAGRAM



**PROJECT** Ground Water Monitoring System Upgrade  
Baton Rouge Facility

**FOR** Schuykill Metals Corporation  
Baton Rouge, Louisiana

**WELL NO.** W-17  
**JOB NO.** 84-185  
**DATE** December 21-22, 1984  
**TECHNICIAN** M. Prochaska

| DEPTH<br>(FEET) | SAMPLE | S.P.T.<br>(Blows/Ft.)<br>or<br>Pkt. Pen.<br>(TSF) | Drill Method: Auger 0 to 24'; Wet rotary 24 to 40'.<br>Initial Water Level: 24'; Rose to 21.5' in 10 minutes. |                            |                             |                 |                 | Driller   | Rig        | Surface Elev. | Total Depth-Ft. | WELL<br>DIAGRAM |
|-----------------|--------|---|---|----------------------------|-----------------------------|-----------------|-----------------|---|------------|---------------|-----------------|-----------------|
|                 |        |   | Compressive<br>Strength<br>(TSF)  | Moisture<br>Content<br>(%) | Dry Unit<br>Weight<br>(PCF) | Atterberg<br>LL | Atterberg<br>PI |   |            |               |                 |                 |
|                 |        |   |   |                            |                             |                 |                 | E.T. Lamy   | ARCO 55000 | 50.9'         | 40              |                 |
|                 |        |   |   |                            |                             |                 |                 | MATERIAL CLASSIFICATION   |            |               |                 |                 |
|                 |        |   |   |                            |                             |                 |                 | STIFF TAN, LIGHT BROWN AND LIGHT GRAY<br>VERY SILTY CLAY FILL   |            |               |                 |                 |
|                 |        |   |   |                            |                             |                 |                 | (CL)  |            |               |                 |                 |
|                 |        |   |   |                            |                             |                 |                 | VERY STIFF TO HARD TAN, LIGHT BROWN AND<br>LIGHT GRAY CLAY with slickensides, organic<br>streaks & silt pockets |            |               |                 |                 |
|                 |        |   |   |                            |                             |                 |                 | ---becomes HARD below 10'   |            |               |                 |                 |
|                 |        |   |   |                            |                             |                 |                 | ---with calcareous nodules  |            |               |                 |                 |
|                 |        |   |   | 23                         | 104                         | 47              | 28              | (CH)  |            |               |                 |                 |
|                 |        |   |   |                            |                             |                 |                 | ALTERNATING LAYERS OF HARD BROWN AND GRAY<br>CLAY AND FIRM TO DENSE BROWN AND GRAY SILT                         |            |               |                 |                 |
|                 |        |   | *   | 27                         | 87                          | 42              | 21              | 100   |            |               |                 |                 |
|                 |        |   |   |                            |                             |                 |                 | (CH-ML)   |            |               |                 |                 |
|                 |        |   |   |                            |                             |                 |                 | HARD LIGHT BROWN CLAY with slickensides &<br>silt pockets   |            |               |                 |                 |
|                 |        |   |   |                            |                             |                 |                 | (CH)  |            |               |                 |                 |
|                 |        |   |   |                            |                             |                 |                 | Bottom @ 40'  |            |               |                 |                 |

NOTES:

- Shelby Tube Sample
- Soil-spoon Sample
- Auger Sample

Hole reamed to 8" diameter to 34'.  
34 to 40" (4" diameter) backfilled with pellets.  
\* k = 1.78 x 10<sup>-7</sup> cm/sec

- Bentonite-cement Grout
- Bentonite Pellets
- Filter Sand



# MONITORING WELL DIAGRAM

16



**PROJECT** Ground Water Monitoring System Upgrade  
Baton Rouge Facility  
**FOR** Schuykill Metals Corporation  
Baton Rouge, Louisiana

**WELL NO.** W-18  
**JOB NO.** 94-105  
**DATE** December 22, 1994  
**TECHNICIAN** J.R. Dyson

Drill Method: Auger 0 to 18'; Wet rotary 18 to 28'.

Driller T. Lewis

Surface Elev. 45.2'

Initial Water Level: 18'; Rose to 5.5' in 90 minutes.

Rig GEFCO 1500

Total Depth-Ft. 28

| DEPTH<br>(FEET) | SAMPLE | S.P.T.<br>(Blows/Ft.)<br>or<br>Pkt. Pen.<br>(TSF) | Compressive<br>Strength<br>(TSF) | Moisture<br>Content<br>(%) | Dry Unit<br>Weight<br>(PCF) | Atterberg |    | % Passing<br>#200<br>Sieve | Symbol | MATERIAL CLASSIFICATION   | WELL<br>DIAGRAM |
|-----------------|--------|---|----------------------------------|----------------------------|-----------------------------|-----------|----|----------------------------|--------|---|-----------------|
|                 |        |   |                                  |                            |                             | LL        | PI |                            |        |   |                 |
| 0               |        |   |                                  |                            |                             |           |    |                            |        | STIFF TAN SILTY CLAY FILL   |                 |
| 5               |        |   |                                  |                            |                             |           |    |                            |        | (CL)  |                 |
| 10              |        |   |                                  | 24                         | 104                         | 58        | 42 |                            |        | STIFF TO VERY STIFF TAN AND LIGHT GRAY CLAY   |                 |
| 15              |        |   |                                  |                            |                             |           |    |                            |        | ---with sand pockets & seams below 10'  |                 |
| 20              |        |   | *                                | 28                         | 95                          | 28        | 3  | 97                         |        | FIRM TAN SANDY SILT with clay   |                 |
| 25              |        |   |                                  |                            |                             |           |    |                            |        | VERY STIFF TAN AND LIGHT GRAY CLAY with<br>sand & silt pockets & calcareous nodules |                 |
| 30              |        |   |                                  |                            |                             |           |    |                            |        | (CH)  |                 |
| 35              |        |   |                                  |                            |                             |           |    |                            |        | Bottom @ 28'  |                 |
| 40              |        |   |                                  |                            |                             |           |    |                            |        |   |                 |
| 45              |        |   |                                  |                            |                             |           |    |                            |        |   |                 |

ITS:

Shelby Tube Sample  
Split-spoon Sample  
Auger Sample

Hole reamed to 8" diameter.  
\* k = 4.38 x 10<sup>-7</sup> cm/sec

Bentonite-cement Grout  
Bentonite Pellets  
Filter Sand

# MONITORING WELL DIAGRAM



**PROJECT** Ground Water Monitoring System Upgrade  
Baton Rouge Facility

**FOR** Schuykill Metals Corporation  
Baton Rouge, Louisiana

**WELL NO.** W-13R  
**JOB NO.** 94-185  
**DATE** December 28, 1994  
**TECHNICIAN** J.R. Dyson

| DEPTH (FEET) |  | SAMPLE                           | S.P.T.<br>(Blows/Ft.)<br>or<br>Pkt. Pen.<br>(TSF) | Drill Method: Auger 0 to 18'; Wet rotary 18' to 50'  |           |    |                            |        |  | Driller | E.T. Lamy | Surface Elev. 78.9' |            | WELL |
|--------------|--|----------------------------------|---|--|-----------|----|----------------------------|--------|--|---------|-----------|---------------------|------------|------|
|              |  |                                  |   | Initial Water Level: 7'; Rose to 8.5' in 15 minutes. |           |    |                            |        |  |         |           | Rig                 | ARCO 5500D |      |
|              |  | Compressive<br>Strength<br>(TSF) | Moisture<br>Content<br>(%)                        | Dry Unit<br>Weight<br>(PCF)                          | Atterberg |    | % Passing<br>#200<br>Sieve | Symbol | MATERIAL CLASSIFICATION  |         |           |                     |            |      |
|              |  |                                  |   |  | LL        | PI |                            |        |  |         |           |                     |            |      |
|              |  |                                  |   |  |           |    |                            |        | BROWN AND TAN SILTY CLAY with rubble   |         |           |                     |            |      |
|              |  |                                  |   |  |           |    |                            |        | MEDIUM TO STIFF BROWN AND TAN SILTY CLAY<br>with ferrous nodules                           |         |           |                     |            |      |
|              |  |                                  |   |  |           |    |                            |        | -- with silt lenses and clayey<br>silt layers @ 7'   |         |           |                     |            |      |
| 5            |  |                                  |   |  |           |    |                            |        | (CL)   |         |           |                     |            |      |
|              |  |                                  |   |  |           |    |                            |        | VERY STIFF TAN AND LIGHT GRAY CLAY<br>with silt streaks and pockets<br>and ferrous nodules |         |           |                     |            |      |
| 10           |  |                                  |   |  |           |    |                            |        | --with silt pockets @ 20'  |         |           |                     |            |      |
|              |  |                                  |   |  |           |    |                            |        | (CH)   |         |           |                     |            |      |
| 15           |  |                                  |   |  |           |    |                            |        | FIRM TAN AND LIGHT GRAY CLAYEY SILT  |         |           |                     |            |      |
|              |  |                                  |   |  |           |    |                            |        | (ML)   |         |           |                     |            |      |
| 20           |  |                                  |   |  |           |    |                            |        | VERY STIFF TAN AND LIGHT GRAY CLAY<br>with silt pockets and ferrous nodules                |         |           |                     |            |      |
|              |  |                                  |   |  |           |    |                            |        | -- slickensided @ 28'  |         |           |                     |            |      |
| 25           |  |                                  |   |  |           |    |                            |        | --with calcareous nodules below 38'  |         |           |                     |            |      |
|              |  |                                  |   |  |           |    |                            |        | * k = 3.54 x 10 <sup>-8</sup> cm/sec   |         |           |                     |            |      |
| 30           |  |                                  |   |  |           |    |                            |        |  |         |           |                     |            |      |
|              |  |                                  |   |  |           |    |                            |        |  |         |           |                     |            |      |
| 35           |  |                                  |   |  |           |    |                            |        |  |         |           |                     |            |      |
|              |  |                                  |   |  |           |    |                            |        |  |         |           |                     |            |      |
| 40           |  |                                  |   |  |           |    |                            |        |  |         |           |                     |            |      |
|              |  |                                  |   |  |           |    |                            |        |  |         |           |                     |            |      |
| 45           |  |                                  |   |  |           |    |                            |        |  |         |           |                     |            |      |
|              |  |                                  |   |  |           |    |                            |        |  |         |           |                     |            |      |
|              |  |                                  |   |  |           |    |                            |        |  |         |           |                     |            |      |
|              |  |                                  |   |  |           |    |                            |        |  |         |           |                     |            |      |
|              |  |                                  |   |  |           |    |                            |        |  |         |           |                     |            |      |
|              |  |                                  |   |  |           |    |                            |        |  |         |           |                     |            |      |
|              |  |                                  |   |  |           |    |                            |        |  |         |           |                     |            |      |
|              |  |                                  |   |  |           |    |                            |        |  |         |           |                     |            |      |
|              |  |                                  |   |  |           |    |                            |        |  |         |           |                     |            |      |
|              |  |                                  |   |  |           |    |                            |        |  |         |           |                     |            |      |
|              |  |                                  |   |  |           |    |                            |        |  |         |           |                     |            |      |
|              |  |                                  |   |  |           |    |                            |        |  |         |           |                     |            |      |
|              |  |                                  |   |  |           |    |                            |        |  |         |           |                     |            |      |
|              |  |                                  |   |  |           |    |                            |        |  |         |           |                     |            |      |
|              |  |                                  |   |  |           |    |                            |        |  |         |           |                     |            |      |
|              |  |                                  |   |  |           |    |                            |        |  |         |           |                     |            |      |
|              |  |                                  |   |  |           |    |                            |        |  |         |           |                     |            |      |
|              |  |                                  |   |  |           |    |                            |        |  |         |           |                     |            |      |
|              |  |                                  |   |  |           |    |                            |        |  |         |           |                     |            |      |
|              |  |                                  |   |  |           |    |                            |        |  |         |           |                     |            |      |
|              |  |                                  |   |  |           |    |                            |        |  |         |           |                     |            |      |
|              |  |                                  |   |  |           |    |                            |        |  |         |           |                     |            |      |
|              |  |                                  |   |  |           |    |                            |        |  |         |           |                     |            |      |
|              |  |                                  |   |  |           |    |                            |        |  |         |           |                     |            |      |
|              |  |                                  |   |  |           |    |                            |        |  |         |           |                     |            |      |
|              |  |                                  |   |  |           |    |                            |        |  |         |           |                     |            |      |
|              |  |                                  |   |  |           |    |                            |        |  |         |           |                     |            |      |
|              |  |                                  |   |  |           |    |                            |        |  |         |           |                     |            |      |
|              |  |                                  |   |  |           |    |                            |        |  |         |           |                     |            |      |
|              |  |                                  |   |  |           |    |                            |        |  |         |           |                     |            |      |
|              |  |                                  |   |  |           |    |                            |        |  |         |           |                     |            |      |
|              |  |                                  |   |  |           |    |                            |        |  |         |           |                     |            |      |
|              |  |                                  |   |  |           |    |                            |        |  |         |           |                     |            |      |
|              |  |                                  |   |  |           |    |                            |        |  |         |           |                     |            |      |
|              |  |                                  |   |  |           |    |                            |        |  |         |           |                     |            |      |
|              |  |                                  |   |  |           |    |                            |        |  |         |           |                     |            |      |
|              |  |                                  |   |  |           |    |                            |        |  |         |           |                     |            |      |
|              |  |                                  |   |  |           |    |                            |        |  |         |           |                     |            |      |
|              |  |                                  |   |  |           |    |                            |        |  |         |           |                     |            |      |
|              |  |                                  |   |  |           |    |                            |        |  |         |           |                     |            |      |
|              |  |                                  |   |  |           |    |                            |        |  |         |           |                     |            |      |
|              |  |                                  |   |  |           |    |                            |        |  |         |           |                     |            |      |
|              |  |                                  |   |  |           |    |                            |        |  |         |           |                     |            |      |
|              |  |                                  |   |  |           |    |                            |        |  |         |           |                     |            |      |
|              |  |                                  |   |  |           |    |                            |        |  |         |           |                     |            |      |
|              |  |                                  |   |  |           |    |                            |        |  |         |           |                     |            |      |
|              |  |                                  |   |  |           |    |                            |        |  |         |           |                     |            |      |
|              |  |                                  |   |  |           |    |                            |        |  |         |           |                     |            |      |
|              |  |                                  |   |  |           |    |                            |        |  |         |           |                     |            |      |
|              |  |                                  |   |  |           |    |                            |        |  |         |           |                     |            |      |
|              |  |                                  |   |  |           |    |                            |        |  |         |           |                     |            |      |
|              |  |                                  |   |  |           |    |                            |        |  |         |           |                     |            |      |
|              |  |                                  |   |  |           |    |                            |        |  |         |           |                     |            |      |
|              |  |                                  |   |  |           |    |                            |        |  |         |           |                     |            |      |
|              |  |                                  |   |  |           |    |                            |        |  |         |           |                     |            |      |
|              |  |                                  |   |  |           |    |                            |        |  |         |           |                     |            |      |
|              |  |                                  |   |  |           |    |                            |        |  |         |           |                     |            |      |
|              |  |                                  |   |  |           |    |                            |        |  |         |           |                     |            |      |
|              |  |                                  |   |  |           |    |                            |        |  |         |           |                     |            |      |
|              |  |                                  |   |  |           |    |                            |        |  |         |           |                     |            |      |
|              |  |                                  |   |  |           |    |                            |        |  |         |           |                     |            |      |
|              |  |                                  |   |  |           |    |                            |        |  |         |           |                     |            |      |
|              |  |                                  |   |  |           |    |                            |        |  |         |           |                     |            |      |
|              |  |                                  |   |  |           |    |                            |        |  |         |           |                     |            |      |
|              |  |                                  |   |  |           |    |                            |        |  |         |           |                     |            |      |
|              |  |                                  |   |  |           |    |                            |        |  |         |           |                     |            |      |
|              |  |                                  |   |  |           |    |                            |        |  |         |           |                     |            |      |
|              |  |                                  |   |  |           |    |                            |        |  |         |           |                     |            |      |
|              |  |                                  |   |  |           |    |                            |        |  |         |           |                     |            |      |
|              |  |                                  |   |  |           |    |                            |        |  |         |           |                     |            |      |
|              |  |                                  |   |  |           |    |                            |        |  |         |           |                     |            |      |
|              |  |                                  |   |  |           |    |                            |        |  |         |           |                     |            |      |
|              |  |                                  |   |  |           |    |                            |        |  |         |           |                     |            |      |
|              |  |                                  |   |  |           |    |                            |        |  |         |           |                     |            |      |
|              |  |                                  |   |  |           |    |                            |        |  |         |           |                     |            |      |
|              |  |                                  |   |  |           |    |                            |        |  |         |           |                     |            |      |
|              |  |                                  |   |  |           |    |                            |        |  |         |           |                     |            |      |
|              |  |                                  |   |  |           |    |                            |        |  |         |           |                     |            |      |
|              |  |                                  |   |  |           |    |                            |        |  |         |           |                     |            |      |
|              |  |                                  |   |  |           |    |                            |        |  |         |           |                     |            |      |
|              |  |                                  |   |  |           |    |                            |        |  |         |           |                     |            |      |
|              |  |                                  |   |  |           |    |                            |        |  |         |           |                     |            |      |
|              |  |                                  |   |  |           |    |                            |        |  |         |           |                     |            |      |
|              |  |                                  |   |  |           |    |                            |        |  |         |           |                     |            |      |
|              |  |                                  |   |  |           |    |                            |        |  |         |           |                     |            |      |
|              |  |                                  |   |  |           |    |                            |        |  |         |           |                     |            |      |
|              |  |                                  |   |  |           |    |                            |        |  |         |           |                     |            |      |
|              |  |                                  |   |  |           |    |                            |        |  |         |           |                     |            |      |
|              |  |                                  |   |  |           |    |                            |        |  |         |           |                     |            |      |
|              |  |                                  |   |  |           |    |                            |        |  |         |           |                     |            |      |
|              |  |                                  |   |  |           |    |                            |        |  |         |           |                     |            |      |
|              |  |                                  |   |  |           |    |                            |        |  |         |           |                     |            |      |

NOTES:

Shelby Tube Sample  
 Split-spoon Sample  
 Auger Sample

Hole reamed to 8" diameter.  
Begun 12/28/94. Completed 1/10/95.  
8" of 8" diameter casing set.  
Boring terminated at depth specified by D. Mann.

Bentonite-cement GROUT  
 Bentonite Pellets  
 Filter Sand

# MONITORING WELL DIAGRAM



**PROJECT** Ground Water Monitoring System Upgrade  
Baton Rouge Facility  
**FOR** Schuykill Metals Corporation  
Baton Rouge, Louisiana

**WELL NO.** W-12R  
**JOB NO.** 94-185  
**DATE** December 20, 1994  
**TECHNICIAN** M. Prochaska

| DEPTH (FEET)  |  | SAMPLE | S.P.T.<br>(Blows/Ft.)<br>or<br>Pkt. Pen.<br>(TSF) | Drill Method: Auger 0 To 14"; Wet rotary 14 To 40" |                            |                             |           |    |                            | Symbol  | MATERIAL CLASSIFICATION | WELL<br>DIAGRAM |
|---|--|--------|---|--|----------------------------|-----------------------------|-----------|----|----------------------------|---|-------------------------|-----------------|
| Initial Water Level: 12"; Rose to 10.5" in 15 minutes |  |        |   | Compressive<br>Strength<br>(TSF)                   | Moisture<br>Content<br>(%) | Dry Unit<br>Weight<br>(PCF) | Atterberg |    | % Passing<br>#200<br>Sieve |   |                         |                 |
|   |  | LL     | PI  |  |                            |                             |           |    |                            |   |                         |                 |
| 0   |  |        |   |  |                            |                             |           |    |                            | STIFF TAN CLAY FILL   |                         |                 |
| 5   |  |        |   |  |                            |                             |           |    |                            |   |                         |                 |
| 10  |  |        |   |  |                            |                             |           |    |                            | MEDIUM LIGHT GRAY, GRAY, AND BLACK<br>SILT with organics<br><br>(ML)  |                         |                 |
| 15  |  |        |   |  |                            |                             |           |    |                            | STIFF TAN AND GRAY CLAY with<br>silt pockets<br><br>(CH)  |                         |                 |
| 20  |  |        |   | 26   | 87                         | 44                          | 23        |    |                            | FIRM TAN AND LIGHT GRAY FINE<br>SANDY SILT<br>(ML)  |                         |                 |
| 25  |  |        |   |  |                            |                             |           |    |                            | VERY STIFF LIGHT BROWN, TAN AND LIGHT<br>GRAY CLAY with silty sand layers<br><br>(CH)   |                         |                 |
| 30  |  |        |   |  |                            |                             |           |    |                            | VERY STIFF BROWN, GRAY AND TAN CLAY<br>with silt pockets and lenses<br>---slickensided @ 20'<br>---with Silty Clay layers below 21'<br><br>(CH) |                         |                 |
| 35  |  |        | *   | 22   | 104                        | 34                          | 18        | 98 |                            | HARD LIGHT BROWN AND GRAY CLAY with<br>silt pockets and organics<br>---slickensided @ 30'<br><br>(CH)   |                         |                 |
| 40  |  |        |   |  |                            |                             |           |    |                            | HARD LIGHT GRAY VERY SILTY CLAY<br><br>(CL)   |                         |                 |
| 45  |  |        |   |  |                            |                             |           |    |                            | Bottom @ 40'  |                         |                 |
| 50  |  |        |   |  |                            |                             |           |    |                            |   |                         |                 |

## COMMENTS:

Shelby Tube Sample  
 Split-spoon Sample  
 Auger Sample

Hole reamed to 8" diameter.  
 \* k = 1.8 x 10<sup>-5</sup>

Bentonite-cement Grout  
 Bentonite Pellets  
 Filter Sand



# MONITORING WELL DIAGRAM

**PROJECT** Ground Water Monitoring System Upgrade  
Baton Rouge Facility  
**FOR** Schuykill Metals Corporation  
Baton Rouge, Louisiana

**WELL NO.** W-4R  
**JOB NO.** 94-185  
**DATE** December 20-21, 1994  
**TECHNICIAN** J.R. Dyson

Drill Method: Auger 0 to 12'; Wet rotary 12' to 34'.

Driller T. Lewis

Surface Elev. 43.5'

Initial Water Level: 10'; Rose to 7' in 15 minutes.

Rig GEFCO 1500

Total Depth-Ft. 34

| DEPTH<br>(FEET) | SAMPLE | S.P.T.<br>(Blows/Ft.)<br>or<br>Pkt. Pen.<br>(TSF) | Compressive<br>Strength<br>(TSF) | Moisture<br>Content<br>(%) | Dry Unit<br>Weight<br>(PCF) | Atterberg |    | % Passing<br>#200<br>Sieve | Symbol | MATERIAL CLASSIFICATION  | WELL<br>DIAGRAM |
|-----------------|--------|---|----------------------------------|----------------------------|-----------------------------|-----------|----|----------------------------|--------|--|-----------------|
|                 |        |   |                                  |                            |                             | LL        | PI |                            |        |  |                 |
| 5               |        |   |                                  |                            |                             |           |    |                            |        | MEDIUM TO STIFF TAN AND LIGHT GRAY<br>CLAY FILL<br><br>(CL)  |                 |
| 10              |        |   |                                  |                            |                             |           |    |                            |        | SOFT TO MEDIUM DARK GRAY AND TAN SILTY<br>CLAY with roots & organics<br><br>(CL)                                 |                 |
| 15              |        |   |                                  | 27                         | 84                          | 52        | 34 |                            |        | ALTERNATING LAYERS OF DARK GRAY SILTY SAND,<br>SILTY CLAY AND SILT with organics & roots                         |                 |
| 20              |        |   |                                  |                            |                             |           |    |                            |        | STIFF TO VERY STIFF TAN AND LIGHT GRAY<br>CLAY with silt pockets, lenses & streaks<br>---with calcareous nodules |                 |
| 25              |        |   | *                                | 28                         | 98                          | 55        | 35 | 100                        |        | ---with traces of Fine Sand below 22'  |                 |
| 30              |        |   |                                  |                            |                             |           |    |                            |        |  |                 |
| 36              |        |   |                                  |                            |                             |           |    |                            |        | (CH)   |                 |
| 40              |        |   |                                  |                            |                             |           |    |                            |        | Bottom @ 34'   |                 |
| 45              |        |   |                                  |                            |                             |           |    |                            |        |  |                 |

NOTES:

- Shelby Tube Sample
- Split-spoon Sample
- Auger Sample

Hole reamed to 8" diameter.  
\* k =  $3.84 \times 10^{-8}$  cm/sec

- Bentonite-cement Grout
- Bentonite Pellets
- Filter Sand

# MONITORING WELL DIAGRAM



**PROJECT** Ground Water Monitoring System Upgrade  
Baton Rouge Facility

**FOR** Schuykill Metals Corporation  
Baton Rouge, Louisiana

**WELL NO.** W-IR  
**JOB NO.** 84-185  
**DATE** January 20, 1985  
**TECHNICIAN** J.R. Dyson

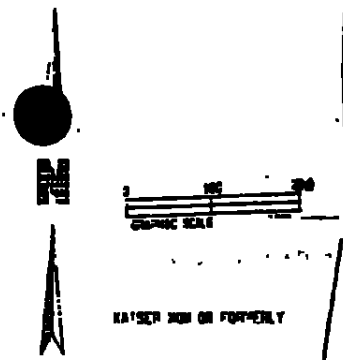
| DEPTH<br>(FEET) | SAMPLE | S.P.T.<br>(Blows/Ft.)<br>or<br>Pkt. Pen.<br>(TSF) | Drill Method: Auger to 8'; Wet rotary 8 to 48'       |                            |                             |           |    |                            |        | Driller T. Lewis   | Surface Elev. 81.7' |
|-----------------|--------|---|--|----------------------------|-----------------------------|-----------|----|----------------------------|--------|--|---------------------|
|                 |        |   | Initial Water Level: 6'; Rose to 0.3' in 15 minutes. |                            |                             |           |    |                            |        | Rig GEFCO 1500   | Total Depth-Ft. 48  |
|                 |        |   | Compressive<br>Strength<br>(TSF)                     | Moisture<br>Content<br>(%) | Dry Unit<br>Weight<br>(PCF) | Atterberg |    | % Passing<br>#200<br>Sieve | Symbol | MATERIAL CLASSIFICATION  | WELL<br>DIAGRAM     |
|                 |        |   |  |                            |                             | LL        | PI |                            |        |  |                     |
|                 |        |   |  |                            |                             |           |    |                            |        | 18" Limestone & Shell Fill   |                     |
| 5               |        |   |  |                            |                             |           |    |                            |        | MEDIUM TAN AND LIGHT GRAY SILTY CLAY<br>with ferrous nodules & roots               |                     |
| 10              |        |   |  |                            |                             |           |    |                            |        | (CL)   |                     |
| 15              |        |   |  |                            |                             |           |    |                            |        | STIFF TO VERY STIFF TAN AND LIGHT GRAY<br>CLAY with silt pockets & ferrous nodules |                     |
| 20              |        |   |  |                            |                             |           |    |                            |        | --slickensided   |                     |
| 25              |        |   |  |                            |                             |           |    |                            |        |  |                     |
| 30              |        |   |  |                            |                             |           |    |                            |        |  |                     |
| 35              |        |   |  |                            |                             |           |    |                            |        | --with calcareous nodules  |                     |
| 40              |        |   | *  | 22                         | 105                         | 28        | 3  | 90                         |        | ALTERNATING LAYERS OF TAN AND LIGHT GRAY<br>SILTY CLAY AND SILT (CL-ML)            |                     |
| 45              |        |   |  |                            |                             |           |    |                            |        | VERY STIFF TAN AND LIGHT GRAY CLAY with<br>sand streaks & pockets (CH)             |                     |
| 50              |        |   |  |                            |                             |           |    |                            |        | Bottom @ 48'   |                     |

## NOTES:

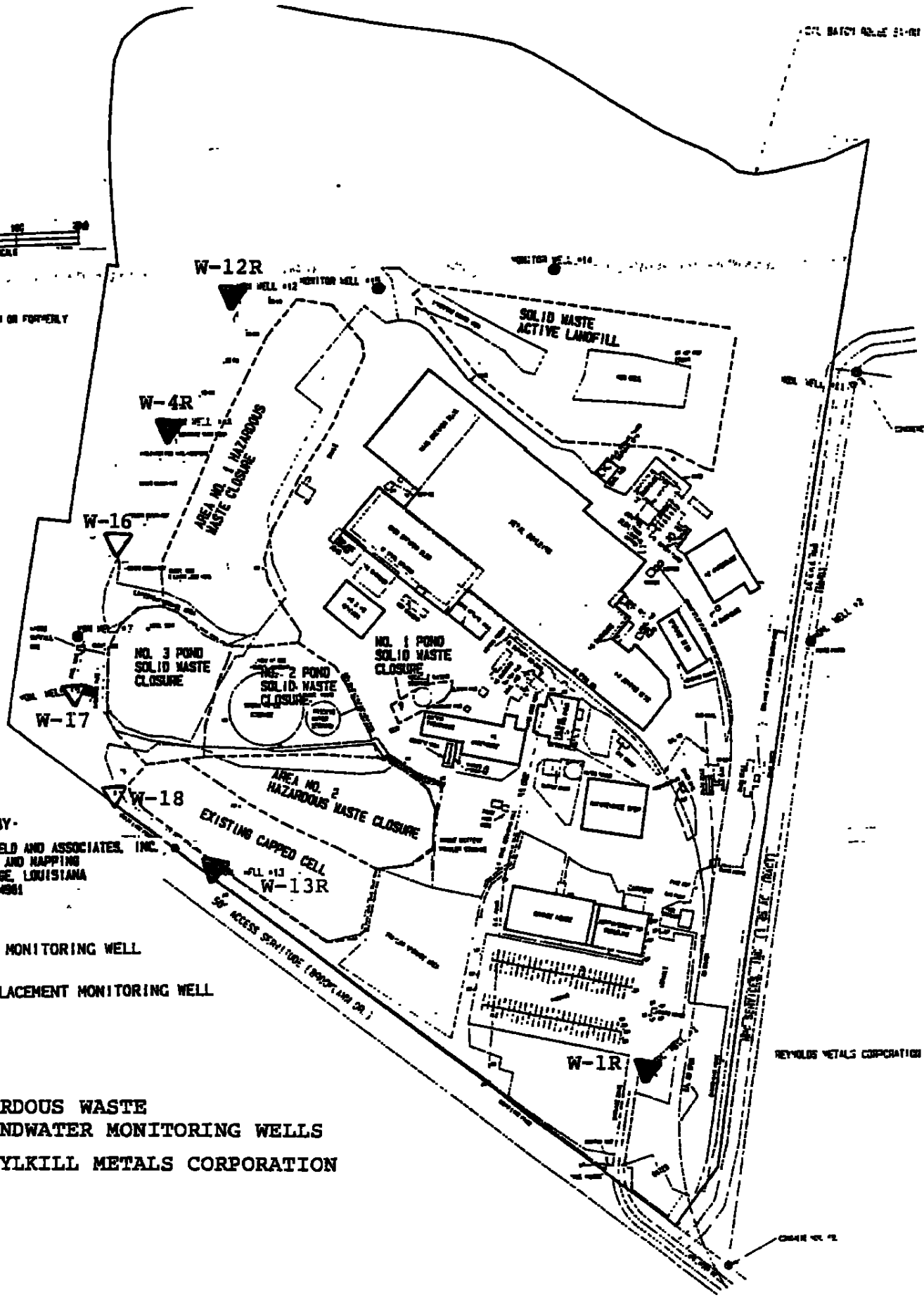
- Shelby Tube Sample
- Split-spoon Sample
- Auger Sample

Hole reamed to 8" diameter.  
\* k = 1.18 x 10<sup>-8</sup> cm/sec

- Bentonite-cement Grout
- Bentonite Pellets
- Filter Sand



KATSEY 200 OR FORMERLY



BASE MAP BY-

M.J. DEFIELD AND ASSOCIATES, INC.  
SURVEYING AND MAPPING  
BATON ROUGE, LOUISIANA  
(504)751-4981

- ▽ NEW MONITORING WELL
- ▼ REPLACEMENT MONITORING WELL

**HAZARDOUS WASTE  
GROUNDWATER MONITORING WELLS  
SCHUYLKILL METALS CORPORATION**

# C-K ASSOCIATES, INC.

## SOIL BORING LOG: B-1

|                               |                                     |                      |
|-------------------------------|-------------------------------------|----------------------|
| CLIENT: Schuykill Metals Corp | LOCATION: Baton Rouge, LA           | PROJECT NO.: 24-502  |
| DRILLER: Singley              | PROJECT NAME: Solid Waste Permit    | X COORD.: N/A        |
| DATE DRILLED: 07/17/95        | DRILLING METHOD: Direct-push/Rotary | Y COORD.: N/A        |
| TOTAL DEPTH: 70.0             | WATER LEVEL (I): 46.0               | WATER LEVEL (S): N/A |
| LOGGED BY: B. Moore           | SURFACE ELEVATION: 77.0             | TOC ELEVATION: N/A   |

| Depth<br>(ft bgs) | Core<br>Sample | O V A<br>(ppm) | Description  | USCS | Lith. | Well<br>Design | Remarks |
|-------------------|----------------|----------------|--|------|-------|----------------|---------|
| 0                 |                |                | Medium reddish brown Silty CLAY<br>w/Fe nodules and stains, dry            | CL   |       |                |         |
| 2                 |                |                |  |      |       |                |         |
| 4                 |                |                | —turning soft, damp  |      |       |                |         |
| 6                 |                |                |  |      |       |                |         |
| 8                 |                |                |  |      |       |                |         |
| 10                |                |                | Soft brown/gray very Silty<br>CLAY, wet                                    | CL   |       |                |         |
| 12                |                |                |  |      |       |                |         |
| 14                |                |                |  |      |       |                |         |
| 16                |                |                | —turning hard  |      |       |                |         |
| 18                |                |                | —slickensides  |      |       |                |         |
| 20                |                |                |  |      |       |                |         |
| 22                |                |                |  |      |       |                |         |
| 24                |                |                | Dense to soft light brown to<br>gray Silty very fine grained<br>SAND, damp | SM   |       |                |         |
| 26                |                |                |  | SC   |       |                |         |

### NOTES:

Approved: SEU



Initial Water Level



Static Water Level



Hand  
Grab



Shelby  
Tube



Split  
Spoon



No  
Recovery

OVALOG

# C-K ASSOCIATES, INC.

## SOIL BORING LOG: B-1

|                                |                                     |                      |
|--------------------------------|-------------------------------------|----------------------|
| CLIENT: Schuylkill Metals Corp | LOCATION: Baton Rouge, LA           | PROJECT NO.: 24-502  |
| DRILLER: Singley               | PROJECT NAME: Solid Waste Permit    | X COORD.: N/A        |
| DATE DRILLED: 07/17/95         | DRILLING METHOD: Direct-push/Rotary | Y COORD.: N/A        |
| TOTAL DEPTH: 70.0              | WATER LEVEL (I): 46.0               | WATER LEVEL (S): N/A |
| LOGGED BY: B. Moore            | SURFACE ELEVATION: 77.0             | TOC-ELEVATION: N/A   |

| Depth<br>(ft bgs) | Core<br>Sample | O V A<br>(ppm) | Description  | USCS | Lith. | Well<br>Design | Remarks |
|-------------------|----------------|----------------|--|------|-------|----------------|---------|
| 26                |                |                | Soft to firm brown to gray Silty<br>Clayey SAND, wet                       | SC   |       |                |         |
| 28                |                |                | ---w/1-inch firm fine grained<br>sand, wet                                 |      |       |                |         |
| 30                |                |                | Very stiff brown to light gray<br>CLAY, w/ silt pockets, Fe<br>stains/nods | CL   |       |                |         |
| 32                |                |                | ---w/Fe stains and nodules   |      |       |                |         |
| 34                |                |                | ---w/sickensides   |      |       |                |         |
| 36                |                |                |  |      |       |                |         |
| 38                |                |                |  |      |       |                |         |
| 40                |                |                |  |      |       |                |         |
| 42                |                |                | ---hard light brown to tan   |      |       |                |         |
| 44                |                |                | Dense light gray to brown Sandy<br>CLAY, dry                               | CL   |       |                |         |
| 46                |                |                | Firm to dense gray Clayey<br>SAND, wet, w/Fe stains                        | SC   |       |                |         |
| 48                |                |                |  |      |       |                |         |
| 50                |                |                | ---damp  |      |       |                |         |
| 52                |                |                |  | SP   |       |                |         |

NOTES:

Approved: 



Initial Water Level



Static Water Level



Hand  
Grab



Shelby  
Tube



Split  
Spoon



No  
Recovery




OVALOG



# C-K ASSOCIATES, INC.

## SOIL BORING LOG: B-1

|                                |                                     |                      |
|--------------------------------|-------------------------------------|----------------------|
| CLIENT: Schuylkill Metals Corp | LOCATION: Baton Rouge, LA           | PROJECT NO.: 24-502  |
| DRILLER: Singley               | PROJECT NAME: Solid Waste Permit    | X COORD.: N/A        |
| DATE DRILLED: 07/17/95         | DRILLING METHOD: Direct-push/Rotary | Y COORD.: N/A        |
| TOTAL DEPTH: 70.0              | WATER LEVEL (I): 48.0               | WATER LEVEL (S): N/A |
| LOGGED BY: B. Moore            | SURFACE ELEVATION: 77.0             | TOC ELEVATION: N/A   |

| Depth<br>(ft bgs) | Core<br>Sample | O V A<br>(ppm) | Description   | USCS | Lith.  | Well<br>Design | Remarks |
|-------------------|----------------|----------------|---|------|--|----------------|---------|
| 52                |                |                |   |      |  |                |         |
|                   |                | 0 *            | Dense light gray to tan fine<br>grained SAND, wet   | SP   |   |                |         |
| 54                |                | 0 *            |   |      |  |                |         |
|                   |                | 0 *            | Stiff light brown to gray Silty<br>Sandy CLAY, dry, w/Fe stains   | CL   |   |                |         |
| 56                |                | 0 *            |   |      |  |                |         |
|                   |                | 0 *            |   |      |  |                |         |
| 58                |                | 0 *            |   |      |  |                |         |
|                   |                | 0 *            | Hard brown to gray CLAY, dry,<br>w/Fe stains  | CL   |  |                |         |
| 60                |                | 0 *            |   |      |  |                |         |
|                   |                | 0 *            |   |      |  |                |         |
| 62                |                | 0 *            |   |      |  |                |         |
|                   |                | 0 *            |   |      |  |                |         |
| 64                |                | 0 *            |   |      |  |                |         |
|                   |                | 0 *            |   |      |  |                |         |
| 66                |                | 0 *            | — slickensides, Fe nodules  |      |  |                |         |
|                   |                | 0 *            |   |      |  |                |         |
| 68                |                | 0 *            |   |      |  |                |         |
|                   |                | 0 *            |   |      |  |                |         |
| 70                |                |                | Boring terminated at 70' bgs<br>Note: Boring drilled with wet<br>rotary. Initial water level<br>estimated from sample moisture. |      |  |                |         |
| 72                |                |                |   |      |  |                |         |
| 74                |                |                |   |      |  |                |         |
| 76                |                |                |   |      |  |                |         |
| 78                |                |                |   |      |  |                |         |

### NOTES:

Approved: *SCW*



Initial Water Level



Static Water Level



Hand  
Grab



Shelby  
Tube



Split  
Spoon



No  
Recovery

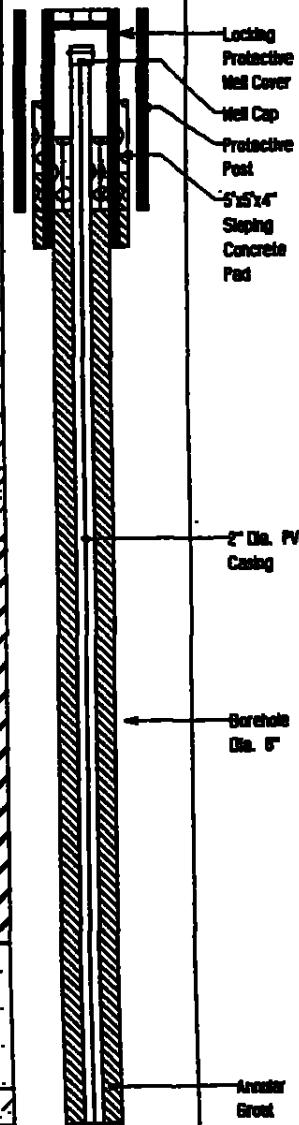
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# C-K ASSOCIATES, INC.

## SOIL BORING LOG: P-1/B-2

|                               |                                     |                           |
|-------------------------------|-------------------------------------|---------------------------|
| CLIENT: Schuykill Metals Corp | LOCATION: Baton Rouge, LA           | PROJECT NO.: 24-502       |
| DRILLER: Singley              | PROJECT NAME: Solid Waste Permit    | X COORD.: 30 deg. 35' 12" |
| DATE DRILLED: 07/13-14/95     | DRILLING METHOD: Direct-push/Rotary | Y COORD.: 91 deg. 14' 58" |
| TOTAL DEPTH: 70.0             | WATER LEVEL (I): 47                 | WATER LEVEL (S): 30.87    |
| LOGGED BY: B. Moore           | SURFACE ELEVATION: 77.60            | TOC ELEVATION: 80.10      |

| Depth<br>(ft bgs) | Core<br>Sample | O V A<br>(ppm) | Description  | USCS | Lith. | Well<br>Design | Remarks |
|-------------------|----------------|----------------|--|------|-------|----------------|---------|
| 0                 |                | 0 *            |  |      |       |                |         |
| 2                 |                | 0 *            |  |      |       |                |         |
| 4                 |                | 0 *            |  |      |       |                |         |
| 6                 |                | 0 *            |  |      |       |                |         |
| 8                 |                | 0 *            | Stiff reddish brown slightly Silty<br>CLAY w/Fe nodules and stains,<br>dry | CL   |       |                |         |
| 10                |                | 0 *            | —increasing silt, wet  |      |       |                |         |
| 12                |                | 0 *            |  |      |       |                |         |
| 14                |                | 0 *            | Very soft brown very Silty CLAY,<br>wet                                    | CL   |       |                |         |
| 16                |                | 0 *            |  |      |       |                |         |
| 18                |                | 0 *            | Hard brown to light gray CLAY,<br>w/Fe nodules and stains, dry             | CL   |       |                |         |
| 20                |                | 0 *            | —sicken-sided  |      |       |                |         |
| 22                |                | 0 *            |  |      |       |                |         |
| 24                |                | 0 *            | Firm brown Silty very fine<br>grained SAND, wet                            | SM   |       |                |         |
| 26                |                | 0 *            | —some clay   |      |       |                |         |
|                   |                | 0 *            | Soft brown and light gray very<br>Silty CLAY, w/ some sand, wet            | CL   |       |                |         |



### NOTES:

Approved: *SEN*



Initial Water Level  
Static Water Level



Hand  
Grab



Shelby  
Tube



Split  
Spoon



No  
Recovery

ST01061

# C-K ASSOCIATES, INC.

## SOIL BORING LOG: P-1/B-2

|                               |                                     |                           |
|-------------------------------|-------------------------------------|---------------------------|
| CLIENT: Schuykill Metals Corp | LOCATION: Baton Rouge, LA           | PROJECT NO.: 24-502       |
| DRILLER: Singley              | PROJECT NAME: Solid Waste Permit    | X COORD.: 30 deg. 35' 12" |
| DATE DRILLED: 07/13-14/95     | DRILLING METHOD: Direct-push/Rotary | Y COORD.: 91 deg. 14' 58" |
| TOTAL DEPTH: 70.0             | WATER LEVEL (I): 47                 | WATER LEVEL (S): 30.87    |
| LOGGED BY: B. Moore           | SURFACE ELEVATION: 77.80            | TOC ELEVATION: 80.10      |

| Depth<br>(ft bgs) | Core<br>Sample | O V A<br>(ppm) | Description   | USCS | Lith. | Well<br>Design | Remarks                       |
|-------------------|----------------|----------------|---|------|-------|----------------|-------------------------------|
| 28                |                | 0 *            |   | CL   |       |                |                               |
| 28                |                | 0 *            | Hard to very stiff red/brown<br>CLAY, w/Fe stains and nodules,<br>dry, slickensides | CL   |       |                |                               |
| 30                |                | 0 *            |   |      |       |                |                               |
| 32                |                | 0 *            | ---w/calcareous nodules   |      |       |                |                               |
| 32                |                | 0 *            | ---light gray to brown  |      |       |                |                               |
| 34                |                | 0 *            |   |      |       |                |                               |
| 36                |                | 0 *            |   |      |       |                |                               |
| 36                |                | 0 *            | Hard brown Sandy Clayey SILT,<br>wet  | ML   |       |                |                               |
| 38                |                | 0 *            | ---very fine grained sand   |      |       |                |                               |
| 40                |                | 0 *            |   |      |       |                |                               |
| 42                |                | 0 *            |   |      |       |                | Top of Bentonite<br>Seal (41) |
| 44                |                | 0 *            | Hard gray CLAY, dry,<br>w/slickensides w/v. fine grained<br>sand and silt seams     | CL   |       |                | Top of Sand<br>Pack (44)      |
| 46                |                | 0 *            |   |      |       |                | Top of<br>Screen<br>(46)      |
| 48                |                | 0 *            | Loose gray v. fine grained<br>SAND, wet   | SP   |       |                |                               |
| 50                |                | 0 *            | ---w/medium gray clay layer   |      |       |                | 20/40 Sand                    |
| 52                |                | 0 *            |   |      |       |                |                               |

### NOTES:

Approved:



Initial Water Level



Static Water Level



Hand  
Grab



Shelby  
Tube



Split  
Spoon



No  
Recovery

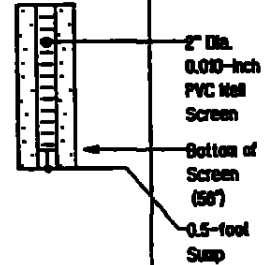
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# C-K ASSOCIATES, INC.

## SOIL BORING LOG: P-1/B-2

|                               |                                     |                           |
|-------------------------------|-------------------------------------|---------------------------|
| CLIENT: Schuykill Metals Corp | LOCATION: Baton Rouge, LA           | PROJECT NO.: 24-502       |
| DRILLER: Singley              | PROJECT NAME: Solid Waste Permit    | X COORD.: 30 deg. 35' 12" |
| DATE DRILLED: 07/13-14/95     | DRILLING METHOD: Direct-push/Rotary | Y COORD.: 91 deg. 14' 58" |
| TOTAL DEPTH: 70.0             | WATER LEVEL (I): 47                 | WATER LEVEL (S): 30.67    |
| LOGGED BY: B. Moore           | SURFACE ELEVATION: 77.80            | TOC ELEVATION: 80.10      |

| Depth<br>(ft bgs) | Core<br>Sample | O V A<br>(ppm) | Description   | USCS | Lith. | Well<br>Design | Remarks |
|-------------------|----------------|----------------|---|------|-------|----------------|---------|
| 52                |                |                |   | SP   |       |                |         |
| 54                |                | 0 *            | Loose gray Clayey SAND, wet   | SC   |       |                |         |
| 56                |                | 0 *            | Hard gray CLAY, w/silty sand<br>packets, damp   | CL   |       |                |         |
| 58                |                | 0 *            | ---w/Fe stains and nodules  |      |       |                |         |
| 60                |                | 0 *            | ---dry  |      |       |                |         |
| 62                |                | 0 *            | ---slickensided   |      |       |                |         |
| 64                |                | 0 *            | ---red w/Fe nodules and stains  |      |       |                |         |
| 66                |                | 0 *            |   |      |       |                |         |
| 68                |                | 0 *            | ---gray to tan  |      |       |                |         |
| 70                |                | 0 *            | Boring terminated at 70' bgs<br>Note: Boring drilled with wet<br>rotary. Initial water level<br>estimated from sample moisture. |      |       |                |         |
| 72                |                |                |   |      |       |                |         |
| 74                |                |                |   |      |       |                |         |
| 76                |                |                |   |      |       |                |         |
| 78                |                |                |   |      |       |                |         |



### NOTES:

Approved: *SEM*



Initial Water Level  
Static Water Level



Hand  
Grab



Shelby  
Tube



Split  
Spoon



No  
Recovery

STD106

# C-K ASSOCIATES, INC.

## SOIL BORING LOG: B-3

|                               |                                     |                      |
|-------------------------------|-------------------------------------|----------------------|
| CLIENT: Schuykill Metals Corp | LOCATION: Baton Rouge, LA           | PROJECT NO.: 24-502  |
| DRILLER: Singley              | PROJECT NAME: Solid Waste Permit    | X COORD.: N/A        |
| DATE DRILLED: 07/18-19/95     | DRILLING METHOD: Direct-push/Rotary | Y COORD.: N/A        |
| TOTAL DEPTH: 100.0            | WATER LEVEL (I): 42.0               | WATER LEVEL (S): N/A |
| LOGGED BY: B. Moore           | SURFACE ELEVATION: 75.0             | TOC ELEVATION: N/A   |

| Depth<br>(ft bgs) | Core<br>Sample | O V A<br>(ppm) | Description   | USCS | Lith. | Well<br>Design | Remarks |
|-------------------|----------------|----------------|---|------|-------|----------------|---------|
| 0                 |                |                | Soft to medium light gray Silty<br>CLAY w/Fe nodules and stains,<br>dry | CL   |       |                |         |
| 2                 |                |                |   |      |       |                |         |
| 4                 |                |                |   |      |       |                |         |
| 6                 |                |                | ---light brown to gray  |      |       |                |         |
| 8                 |                |                |   |      |       |                |         |
| 10                |                |                | Soft brown to light gray very<br>Silty CLAY, wet                        | CL   |       |                |         |
| 12                |                |                |   |      |       |                |         |
| 14                |                |                | Very stiff to hard light gray to<br>tan CLAY, dry                       | CL   |       |                |         |
| 16                |                |                | ---w/Fe nodules and stains  |      |       |                |         |
| 18                |                |                | ---slickensides   |      |       |                |         |
| 20                |                |                |   |      |       |                |         |
| 22                |                |                | Firm brown to gray Silty SAND,<br>very fine grained, damp to wet        | CL   |       |                |         |
| 24                |                |                | ---increasing clay  |      |       |                |         |
| 26                |                |                | Soft light gray to tan Sandy<br>CLAY, damp                              | CL   |       |                |         |
|                   |                |                | Medium light brown Silty CLAY   | CL   |       |                |         |

### NOTES:

Approved: SEN



Initial Water Level



Static Water Level



Hand  
Grab



Shelby  
Tube



Split  
Spoon
















No  
Recovery

OVALOG

# C-K ASSOCIATES, INC.

## SOIL BORING LOG: B-3

|                               |                                     |                      |
|-------------------------------|-------------------------------------|----------------------|
| CLIENT: Schuykill Metals Corp | LOCATION: Baton Rouge, LA           | PROJECT NO.: 24-502  |
| DRILLER: Singley              | PROJECT NAME: Solid Waste Permit    | X COORD.: N/A        |
| DATE DRILLED: 07/18-19/95     | DRILLING METHOD: Direct-push/Rotary | Y COORD.: N/A        |
| TOTAL DEPTH: 100.0            | WATER LEVEL (I): 42.0               | WATER LEVEL (S): N/A |
| LOGGED BY: B. Moore           | SURFACE ELEVATION: 75.0             | TOC ELEVATION: N/A   |

| Depth<br>(ft bgs) | Core<br>Sample  | O V A<br>(ppal) | Description  | USCS | Lith.   | Well<br>Design  | Remarks |
|-------------------|---|-----------------|--|------|---|---|---------|
| 26                |   | 0 *             | Very stiff brown to gray CLAY,<br>w/slickensides, dry                  | CL   |    |    |         |
| 28                |   | 0 *             |  |      |   |   |         |
| 30                |   | 0 *             | ---w/Fe stains and large<br>nodules                                    |      |   |   |         |
| 32                |   | 0 *             |  |      |   |   |         |
| 34                |   | 0 *             | ---hard, green and tan   |      |   |   |         |
| 36                |   | 0 *             |  |      |   |   |         |
| 38                |   | 0 *             |  |      |   |   |         |
| 40                |   | 0 *             |  |      |   |   |         |
| 40                |  | 0 *             | Very soft gray Clayey SAND,<br>wet, w/Fe stains                        | SC   |  |  |         |
| 42                |   | 0 *             | Firm gray SAND, very fine<br>grained, wet                              | SP   |  |  |         |
| 44                |   | 0 *             | ---loose   |      |   |   |         |
| 44                |  | 0 *             |  |      |   |   |         |
| 46                |   | 0 *             | Hard brown to gray CLAY, dry,<br>w/some silt pockets                   | CL   |  |  |         |
| 48                |   | 0 *             | ---slickensides, w/Fe stains   |      |   |   |         |
| 50                |   | 0 *             |  |      |   |   |         |
| 50                |  | 0 *             | Firm gray very fine grained<br>SAND, wet, interbedded w/clay<br>lenses | SP   |  |  |         |
| 52                |   |                 |  | CL   |   |   |         |

### NOTES:

Approved: 173



Initial Water Level



Static Water Level



Hand  
Grab



Shelby  
Tube



Split  
Spoon



No  
Recovery

OVAL OF

# C-K ASSOCIATES, INC.

## SOIL BORING LOG: B-3

|                                |                                     |                      |
|--------------------------------|-------------------------------------|----------------------|
| CLIENT: Schuylkill Metals Corp | LOCATION: Baton Rouge, LA           | PROJECT NO.: 24-502  |
| DRILLER: Singley               | PROJECT NAME: Solid Waste Permit    | X COORD.: N/A        |
| DATE DRILLED: 07/18-19/95      | DRILLING METHOD: Direct-push/Rotary | Y COORD.: N/A        |
| TOTAL DEPTH: 100.0             | WATER LEVEL (I): 42.0               | WATER LEVEL (S): N/A |
| LOGGED BY: B. Moore            | SURFACE ELEVATION: 75.0             | TOC ELEVATION: N/A   |

| Depth<br>(ft bgs) | Core<br>Sample | O V A<br>(ppm) | Description                            | USCS | Lith. | Well<br>Design | Remarks |
|-------------------|----------------|----------------|--|------|-------|----------------|---------|
| 52                |                | 0 *            | Hard gray CLAY, dry                    | CL   |       |                |         |
| 54                |                | 0 *            | ---w/1-inch sandy clay lens            |      |       |                |         |
| 56                |                | 0 *            | ---sickensides filled w/very fine sand |      |       |                |         |
| 58                |                | 0 *            | ---mottled gray and brown              |      |       |                |         |
| 60                |                | 0 *            |  |      |       |                |         |
| 62                |                | 0 *            | ---Fe stains                           |      |       |                |         |
| 64                |                | 0 *            |  |      |       |                |         |
| 66                |                | 0 *            |  |      |       |                |         |
| 68                |                | 0 *            |  |      |       |                |         |
| 70                |                | 0 *            | ---hard reddish brown, w/Fe nodules    |      |       |                |         |
| 72                |                |                |  |      |       |                |         |
| 74                |                |                |  |      |       |                |         |
| 76                |                | 0 *            |  |      |       |                |         |
| 78                |                |                |  |      |       |                |         |

### NOTES:

Approved: 



Initial Water Level  
Static Water Level



Hand  
Grab



Shelby  
Tube



Split  
Spoon





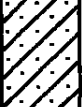



No  
Recovery

OVALOG

# C-K ASSOCIATES, INC.

## SOIL BORING LOG: B-3

|                               |                                     |                      |
|-------------------------------|-------------------------------------|----------------------|
| CLIENT: Schuykill Metals Corp | LOCATION: Baton Rouge, LA           | PROJECT NO.: 24-502  |
| DRILLER: Singley              | PROJECT NAME: Solid Waste Permit    | X COORD.: N/A        |
| DATE DRILLED: 07/18-19/96     | DRILLING METHOD: Direct-push/Rotary | Y COORD.: N/A        |
| TOTAL DEPTH: 100.0            | WATER LEVEL (I): 42.0               | WATER LEVEL (S): N/A |
| LOGGED BY: B. Moore           | SURFACE ELEVATION: 75.0             | TOC ELEVATION: N/A   |

| Depth<br>(ft bgs) | Core<br>Sample | O V A<br>(ppm) | Description  | USCS | Lith.   | Well<br>Design   | Remarks |
|-------------------|----------------|----------------|--|------|---|--|---------|
| 78                |                |                |  | CL   |    |  |         |
| 80                |                | 0              |  |      |   |  |         |
| 82                |                |                |  |      |   |  |         |
| 84                |                |                |  |      |   |  |         |
| 86                |                | 0              | Hard gray Sandy CLAY, dry  | CL   |   |  |         |
| 88                |                |                |  |      |   |  |         |
| 90                |                | 0              | Hard brown and gray CLAY,<br>w/slickensides, dry   | CL   |  |  | Grout   |
| 92                |                |                | ---slickensides, dry   |      |   |  |         |
| 94                |                |                |  |      |   |  |         |
| 96                |                | 0              |  |      |   |  |         |
| 98                |                |                |  |      |   |  |         |
| 100               |                |                | Loose grown medium grained<br>SAND, wet  | SP   |  |  |         |
|                   |                | 0              | Stiff brown to gray Sandy CLAY,<br>damp  | CL   |  |  |         |
| 102               |                |                | Boring terminated at 102' bgs<br>Note: boring drilled with wet<br>rotary. Initial water level<br>estimated from sample moisture. |      |   |  |         |
| 104               |                |                |  |      |   |  |         |

### NOTES:

Approved: 



Initial Water Level  
Static Water Level



Hand  
Grab



Shelby  
Tube



Split  
Spoon



No  
Recovery

OVALOG

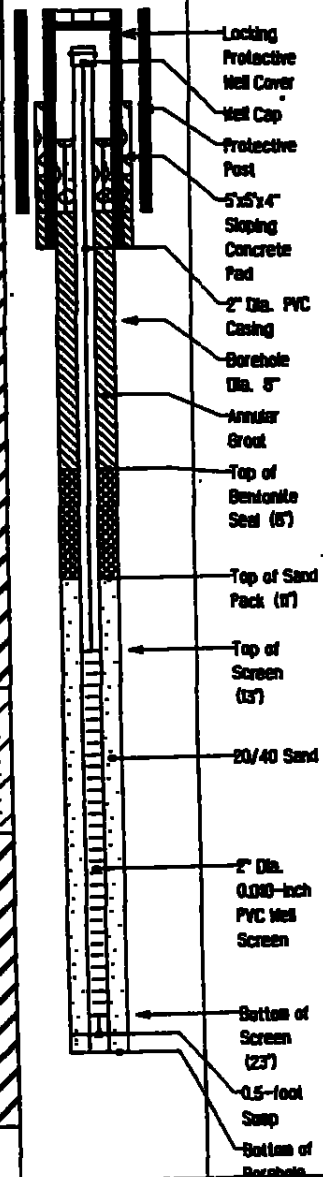


# C-K ASSOCIATES, INC.

## SOIL BORING LOG: P-2/B-4

|                               |                                     |                           |
|-------------------------------|-------------------------------------|---------------------------|
| CLIENT: Schuykill Metals Corp | LOCATION: Baton Rouge, LA           | PROJECT NO.: 24-502       |
| DRILLER: Singley              | PROJECT NAME: Solid Waste Permit    | X COORD.: 30 deg. 35' 10" |
| DATE DRILLED: 07/5/95         | DRILLING METHOD: Direct-push/Rotary | Y COORD.: 91 deg. 14' 57" |
| TOTAL DEPTH: 30.0             | WATER LEVEL (I): 14.0               | WATER LEVEL (S): 3.67     |
| LOGGED BY: B. Moore           | SURFACE ELEVATION: 42.84            | TOC ELEVATION: 44.43      |

| Depth<br>(ft bgs) | Core<br>Sample | O V A<br>(ppm) | Description   | USCS | Lith. | Well<br>Design | Remarks |
|-------------------|----------------|----------------|---|------|-------|----------------|---------|
| 0                 |                | 0 *            | Stiff light gray and brown CLAY<br>w/Fe stains and nodules, dry | CL   |       |                |         |
| 2                 |                | 0 *            |   |      |       |                |         |
| 4                 |                | 0 *            |   |      |       |                |         |
| 6                 |                | 0 *            |   |      |       |                |         |
| 8                 |                | 0 *            | ---turning medium, wet  |      |       |                |         |
| 10                |                | 0 *            | ---turning v.stiff, dry   |      |       |                |         |
| 12                |                | 0 *            | ---light gray w/Fe stains                                       |      |       |                |         |
| 14                |                | 0 *            |   |      |       |                |         |
| 16                |                | 0 *            | Loose gray and light brown<br>Clayey SAND, wet                  | SC   |       |                |         |
| 18                |                | 0 *            |   |      |       |                |         |
| 20                |                | 0 *            | Very stiff to hard brown CLAY,<br>dry                           | CL   |       |                |         |
| 22                |                | 0 *            | ---slickensided, w/Fe stains                                    |      |       |                |         |
| 24                |                | 0 *            | ---some silt  |      |       |                |         |
| 26                |                | 0 *            | ---interbedded w/black organic<br>soft clay layers (peat)       |      |       |                |         |



### NOTES:

Approved: *SEW*



Initial Water Level



Static Water Level



Hand  
Grab



Shelby  
Tube



Split  
Spoon



No  
Recovery

STOLOGY

# C-K ASSOCIATES, INC.

## SOIL BORING LOG: P-2/B-4

|                               |                                     |                           |
|-------------------------------|-------------------------------------|---------------------------|
| CLIENT: Schrykill Metals Corp | LOCATION: Baton Rouge, LA           | PROJECT NO.: 24-502       |
| DRILLER: Singley              | PROJECT NAME: Solid Waste Permit    | X COORD.: 30 deg. 36' 10" |
| DATE DRILLED: 07/5/95         | DRILLING METHOD: Direct-push/Rotary | Y COORD.: 91 deg. 14' 57" |
| TOTAL DEPTH: 30.0'            | WATER LEVEL (I): 14.0'              | WATER LEVEL (S): 3.87'    |
| LOGGED BY: B. Moore           | SURFACE ELEVATION: 42.64            | TOC ELEVATION: 44.43      |

| Depth<br>(ft bgs) | Core<br>Sample | O V A<br>(ppm) | Description                  | USCS | Lith. | Well<br>Design | Remarks |
|-------------------|----------------|----------------|------------------------------|------|-------|----------------|---------|
| 26                |                | 0 *            |                              | CL   |       |                |         |
| 28                |                | 0 *            | — Fe nodules                 |      |       |                |         |
| 30                |                |                | Boring terminated at 30' bgs |      |       |                |         |
| 32                |                |                |                              |      |       |                |         |
| 34                |                |                |                              |      |       |                |         |
| 36                |                |                |                              |      |       |                |         |
| 38                |                |                |                              |      |       |                |         |
| 40                |                |                |                              |      |       |                |         |
| 42                |                |                |                              |      |       |                |         |
| 44                |                |                |                              |      |       |                |         |
| 46                |                |                |                              |      |       |                |         |
| 48                |                |                |                              |      |       |                |         |
| 50                |                |                |                              |      |       |                |         |
| 52                |                |                |                              |      |       |                |         |

### NOTES:

Approved: *SEN*



Initial Water Level  
Static Water Level



Hand  
Grab



Shelby  
Tube



Split  
Spoon











No  
Recovery

STOLOG

# C-K ASSOCIATES, INC.

## SOIL BORING LOG: B-5

|                               |                                     |                      |
|-------------------------------|-------------------------------------|----------------------|
| CLIENT: Schuykill Metals Corp | LOCATION: Baton Rouge, LA           | PROJECT NO.: 24-502  |
| DRILLER: Singley              | PROJECT NAME: Solid Waste Permit    | X COORD.: N/A        |
| DATE DRILLED: 07/10-11/95     | DRILLING METHOD: Direct-push/Rotary | Y COORD.: N/A        |
| TOTAL DEPTH: 102.0            | WATER LEVEL (I): 12.0               | WATER LEVEL (S): N/A |
| LOGGED BY: B. Moore           | SURFACE ELEVATION: 44.0             | TOC ELEVATION: N/A   |

| Depth<br>(ft bgs) | Core<br>Sample | O V A<br>(ppa) | Description  | USCS | Lith.   | Well<br>Design   | Remarks |
|-------------------|----------------|----------------|--|------|---|--|---------|
| 0                 |                |                | Medium light gray to brown CLAY<br>w/Fe stains and nodules, dry                    | CL   |    |  |         |
| 2                 |                |                |  |      |   |  |         |
| 4                 |                |                |  |      |   |  |         |
| 6                 |                |                | ---turning soft  |      |   |  |         |
| 8                 |                |                |  |      |   |  |         |
| 10                |                |                | Soft gray Silty CLAY, dry  | CL   |   |  |         |
| 12                |                |                | ---increasing silt w/very fine<br>grained sand, damp                               |      |   |  |         |
| 14                |                |                | Firm gray very fine grained<br>SAND, wet   | SC   |  |  | Grout   |
| 16                |                |                | Medium dark gray to black CLAY<br>w/some silt, damp                                | CL   |  |  |         |
| 18                |                |                | Firm gray very fine grained<br>SAND, wet   | SP   |  |  |         |
| 20                |                |                | Soft greenish gray Silty CLAY,<br>interbedded w/ damp black<br>organic peat layers | CL   |  |  |         |
| 22                |                |                |  |      |   |  |         |
| 24                |                |                | Hard green CLAY, w/some very<br>fine grained sand, dry                             | CL   |  |  |         |
| 26                |                |                | ---slickensides  |      |   |  |         |

### NOTES:

Approved: *SEW*



Initial Water Level



Static Water Level



Hand  
Grab



Shelby  
Tube



Split  
Spoon



No  
Recovery

OVAL06

# C-K ASSOCIATES, INC.

## SOIL BORING LOG: B-5

|                               |                                     |                      |
|-------------------------------|-------------------------------------|----------------------|
| CLIENT: Schuykill Metals Corp | LOCATION: Baton Rouge, LA           | PROJECT NO.: 24-502  |
| DRILLER: Singley              | PROJECT NAME: Solid Waste Permit    | X COORD.: N/A        |
| DATE DRILLED: 07/10-11/95     | DRILLING METHOD: Direct-push/Rotary | Y COORD.: N/A        |
| TOTAL DEPTH: 102.0            | WATER LEVEL (I): 12.0               | WATER LEVEL (S): N/A |
| LOGGED BY: B. Moore           | SURFACE ELEVATION: 44.0             | TOC ELEVATION: N/A   |

| Depth<br>(ft bgs) | Core<br>Sample | O V A<br>(ppa) | Description   | USCS | Lith. | Well<br>Design | Remarks |
|-------------------|----------------|----------------|---|------|-------|----------------|---------|
| 26                |                | 0 *            | ---w/Fe stains and nodules                                  | CL   |       |                |         |
| 28                |                | 0 *            | ---brown  |      |       |                |         |
| 30                |                | 0 *            |   |      |       |                |         |
| 32                |                | 0 *            |   |      |       |                |         |
| 34                |                |                | ---mottled  |      |       |                |         |
| 36                |                | 0 *            |   |      |       |                |         |
| 38                |                |                |   |      |       |                |         |
| 40                |                | 0 *            | ---hard tan to brown, w/some<br>very fine grained sand, dry |      |       |                | Grout   |
| 42                |                |                |   |      |       |                |         |
| 44                |                |                |   |      |       |                |         |
| 46                |                | 0 *            |   |      |       |                |         |
| 48                |                |                |   |      |       |                |         |
| 50                |                | 0 *            | ---sickensided, brown and gray                              |      |       |                |         |
| 52                |                |                |   |      |       |                |         |

### NOTES:

Approved: *SEW*



Initial Water Level



Static Water Level



Hand  
Grab



Shelby  
Tube



Split  
Spoon



No  
Recovery

OVAL OF

# C-K ASSOCIATES, INC.

## SOIL BORING LOG: B-5

|                               |                                     |                      |
|-------------------------------|-------------------------------------|----------------------|
| CLIENT: Schrykill Metals Corp | LOCATION: Baton Rouge, LA           | PROJECT NO.: 24-502  |
| DRILLER: Singley              | PROJECT NAME: Solid Waste Permit    | X COORD.: N/A        |
| DATE DRILLED: 07/10-11/95     | DRILLING METHOD: Direct-push/Rotary | Y COORD.: N/A        |
| TOTAL DEPTH: 102.0            | WATER LEVEL (I): 12.0               | WATER LEVEL (S): N/A |
| LOGGED BY: B. Moore           | SURFACE ELEVATION: 44.0             | TOC ELEVATION: N/A   |

| Depth<br>(ft bgs) | Core<br>Sample | OVA<br>(ppm) | Description   | USCS | Lith. | Well<br>Design | Remarks |
|-------------------|----------------|--------------|---|------|-------|----------------|---------|
| 52                |                |              |   | CL   |       |                |         |
| 54                |                |              |   |      |       |                |         |
| 56                |                | 0 *          |   |      |       |                |         |
| 58                |                |              |   |      |       |                |         |
| 60                |                | 0 *          |   |      |       |                |         |
| 62                |                |              |   |      |       |                |         |
| 64                |                |              |   |      |       |                |         |
| 66                |                | 0 *          | Firm brown Clayey SAND, damp,<br>interbedded w/brown fine<br>grained sand layers, wet<br>---w/Fe staining | SC   |       |                |         |
| 68                |                |              |   |      |       |                |         |
| 70                |                | 0 *          | Stiff dark gray CLAY, w/small silt<br>seam, dry   | CL   |       |                |         |
| 72                |                |              |   |      |       |                |         |
| 74                |                |              |   |      |       |                |         |
| 76                |                | 0 *          | Loose brown medium grained<br>SAND, wet   | SP   |       |                |         |
| 78                |                |              |   |      |       |                |         |

### NOTES:

Approved: *SEN*



Initial Water Level  
Static Water Level



Hand  
Grab



Shelby  
Tube



Split  
Spoon



No  
Recovery

OVALOG

# C-K ASSOCIATES, INC.

## SOIL BORING LOG: B-5

|                                |                                     |                      |
|--------------------------------|-------------------------------------|----------------------|
| CLIENT: Schuylkill Metals Corp | LOCATION: Baton Rouge, LA           | PROJECT NO.: 24-502  |
| DRILLER: Singley               | PROJECT NAME: Solid Waste Permit    | X COORD: N/A         |
| DATE DRILLED: 07/10-11/95      | DRILLING METHOD: Direct-push/Rotary | Y COORD: N/A         |
| TOTAL DEPTH: 102.0             | WATER LEVEL (I): 12.0               | WATER LEVEL (S): N/A |
| LOGGED BY: B. Moore            | SURFACE ELEVATION: 44.0             | TOC ELEVATION: N/A   |

| Depth<br>(ft bgs) | Core<br>Sample | O V A<br>(ppm) | Description  | USCS | Lith. | Well<br>Design | Remarks |
|-------------------|----------------|----------------|--|------|-------|----------------|---------|
| 78                |                |                |  | SP   |       |                |         |
| 80                |                |                | Hard gray slightly Silty CLAY,<br>w/fine grained sand pockets,<br>dry  | CL   |       |                |         |
| 82                |                |                |  |      |       |                |         |
| 84                |                |                |  |      |       |                |         |
| 86                |                |                | Hard gray and brown CLAY,<br>w/small seams of v.fine grained<br>sand, dry  | CL   |       |                |         |
| 88                |                |                | ---w/large Fe nodules and Fe<br>staining   |      |       |                |         |
| 90                |                |                | ---sickensides   |      |       |                |         |
| 92                |                |                |  |      |       |                |         |
| 94                |                |                |  |      |       |                |         |
| 96                |                |                |  |      |       |                |         |
| 98                |                |                |  |      |       |                |         |
| 100               |                |                | ---turning reddish brown<br>w/large Fe nodules   |      |       |                |         |
| 102               |                |                | Boring terminated at 102' bgs<br>Note: Boring drilled with wet<br>rotary. Initial water level<br>estimated from sample moisture. |      |       |                |         |
| 104               |                |                |  |      |       |                |         |

### NOTES:

Approved: *SEW*



Initial Water Level



Static Water Level



Hand  
Grab



Shelby  
Tube



Spoon  
Spoon



No  
Recovery

QUALOG

# C-K ASSOCIATES, INC.

## SOIL BORING LOG: P-3/B-6

|                               |                                  |                           |
|-------------------------------|----------------------------------|---------------------------|
| CLIENT: Schuykill Metals Corp | LOCATION: Baton Rouge, LA        | PROJECT NO.: 24-502       |
| DRILLER: Singley              | PROJECT NAME: Solid Waste Permit | X COORD.: 30 deg. 35' 10" |
| DATE DRILLED: 07/12/95        | DRILLING METHOD: Rotary          | Y COORD.: 91 deg. 14' 59" |
| TOTAL DEPTH: 25.0             | WATER LEVEL (I): 9.0             | WATER LEVEL (S): 3.11     |
| LOGGED BY: B. Moore           | SURFACE ELEVATION: 44.6          | TOC ELEVATION: 47.83      |

| Depth<br>(ft bgs) | Core<br>Sample | O V A<br>(ppm) | Description                        | USCS | Lith. | Well<br>Design | Remarks |
|-------------------|----------------|----------------|------------------------------------|------|-------|----------------|---------|
| 0                 |                |                | Refer to Boring Log for<br>P-4/B-6 |      |       |                |         |
| 2                 |                |                |                                    |      |       |                |         |
| 4                 |                |                |                                    |      |       |                |         |
| 6                 |                |                |                                    |      |       |                |         |
| 8                 |                |                |                                    |      |       |                |         |
| 10                |                |                |                                    |      |       |                |         |
| 12                |                |                |                                    |      |       |                |         |
| 14                |                |                |                                    |      |       |                |         |
| 16                |                |                |                                    |      |       |                |         |
| 18                |                |                |                                    |      |       |                |         |
| 20                |                |                |                                    |      |       |                |         |
| 22                |                |                |                                    |      |       |                |         |
| 24                |                |                |                                    |      |       |                |         |
| 26                |                |                |                                    |      |       |                |         |
| 28                |                |                |                                    |      |       |                |         |

### NOTES:

Approved: *SEW*



Initial Water Level  
Static Water Level



Hand  
Grab



Shelby  
Tube



Split  
Spoon





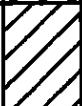




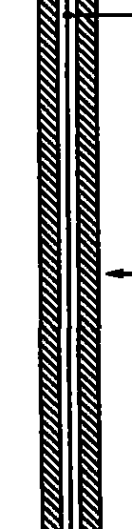

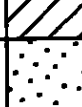
No  
Recovery

ST0106

# C-K ASSOCIATES, INC.

## SOIL BORING LOG: P-4/B-6

|                               |                                     |                           |
|-------------------------------|-------------------------------------|---------------------------|
| CLIENT: Schuykill Metals Corp | LOCATION: Baton Rouge, LA           | PROJECT NO.: 24-502       |
| DRILLER: Singley              | PROJECT NAME: Solid Waste Permit    | X COORD.: 30 deg. 35' 10" |
| DATE DRILLED: 07/11-12/95     | DRILLING METHOD: Direct-push/Rotary | Y COORD.: 91 deg. 14' 59" |
| TOTAL DEPTH: 102.0            | WATER LEVEL (I): 9.0                | WATER LEVEL (S): 18.83    |
| LOGGED BY: B. Moore           | SURFACE ELEVATION: 44.6             | TOC ELEVATION: 47.47      |

| Depth<br>(ft bgs) | Core<br>Sample | O V A<br>(ppal) | Description   | USCS | Lith.   | Well<br>Design   | Remarks               |
|-------------------|----------------|-----------------|---|------|---|--|-----------------------|
| 0                 |                | 0 *             | Medium brown and gray CLAY<br>w/Fe stains and nodules, dry      | CL   |   |  <p>Locking<br/>Protective<br/>Well Cover</p> <p>Well Cap</p> <p>Protective<br/>Post</p> <p>5'x5'x4"<br/>Sloping<br/>Concrete<br/>Pad</p> |                       |
| 2                 |                | 0 *             |   |      |   |  |                       |
| 4                 |                | 0 *             |   |      |   |  |                       |
| 6                 |                | 0 *             | Stiff gray and brown Silty CLAY<br>w/Fe stains and nodules, dry | CL   |  |  |                       |
| 8                 |                | 0 *             |   |      |   |  |                       |
| 10                |                | 0 *             | Dense light gray Silty very fine<br>grained SAND, wet           | SM   |  |  |                       |
| 12                |                | 0 *             | Firm light gray Silty very fine<br>grained SAND, wet            | SC   |  |  | 2" Dia. PVC<br>Casing |
| 14                |                | 0 *             |   |      |   |  |                       |
| 16                |                | 0 *             | Stiff brown and light gray Silty<br>CLAY, dry                   | CL   |  |  |                       |
| 18                |                | 0 *             | Firm greenish gray fine to<br>medium grained SAND, wet          | SP   |  |  <p>Borehole<br/>Dia. 6"</p>  |                       |
| 20                |                | 0 *             | ----some clay   |      |   |  |                       |
| 22                |                | 0 *             | Stiff gray and light brown Silty<br>CLAY, damp                  | CL   |  |  |                       |
| 24                |                | 0 *             | Firm light gray and tan fine<br>grained SAND, damp              | SP   |  |  |                       |
| 26                |                | 0 *             |   | SC   |   |  |                       |

### NOTES:

Approved: *SGN*



Initial Water Level



Static Water Level



Hand  
Grab



Shelby  
Tube



Split  
Spoon



No  
Recovery









STDL06



# C-K ASSOCIATES, INC.

## SOIL BORING LOG: P-4/B-6

|                               |                                     |                           |
|-------------------------------|-------------------------------------|---------------------------|
| CLIENT: Schuykill Metals Corp | LOCATION: Baton Rouge, LA           | PROJECT NO.: 24-502       |
| DRILLER: Singley              | PROJECT NAME: Solid Waste Permit    | X COORD.: 30 deg. 35' 10" |
| DATE DRILLED: 07/11-12/95     | DRILLING METHOD: Direct-push/Rotary | Y COORD.: 91 deg. 14' 59" |
| TOTAL DEPTH: 102.0            | WATER LEVEL (I): 9.0                | WATER LEVEL (S): 18.63    |
| LOGGED BY: B. Moore           | SURFACE ELEVATION: 44.8             | TOC ELEVATION: 47.47      |

| Depth<br>(ft bgs) | Core<br>Sample | O V A<br>(ppal) | Description  | USCS | Lith.   | Well<br>Design   | Remarks           |
|-------------------|----------------|-----------------|--|------|---|--|-------------------|
| 28                |                | 0 *             | Hard to dense light gray Clayey<br>SAND, w/Fe staining, damp to<br>dry | SC   |    |  | Annular<br>Gravel |
| 28                |                | 0 *             |  |      |   |  |                   |
| 30                |                | 0 *             | Stiff brown and light gray very<br>Silty CLAY, w/some sand, dry        | CL   |   |  |                   |
| 32                |                | 0 *             |  |      |   |  |                   |
| 34                |                | 0 *             |  |      |   |  |                   |
| 36                |                | 0 *             | Firm light gray and brown Clayey<br>SAND, dry                          | SC   |  |  |                   |
| 38                |                | 0 *             | ---w/Fe staining   |      |   |  |                   |
| 40                |                | 0 *             | Stiff light gray and brown Sandy<br>CLAY, dry                          | CL   |  |  |                   |
| 42                |                | 0 *             | ---increasing sand   |      |   |  |                   |
| 44                |                | 0 *             |  |      |   |  |                   |
| 46                |                | 0 *             | Hard greenish gray and brown<br>CLAY, dry, w/Fe staining               | CL   |  |  |                   |
| 48                |                | 0 *             |  |      |   |  |                   |
| 50                |                | 0 *             | ---Fe nodules, slickensides  |      |   |  |                   |
| 52                |                | 0 *             |  |      |   |  |                   |
|                   |                |                 |  |      |   |  |                   |

### NOTES:

Approved: SEW



Initial Water Level



Static Water Level



Hand  
Grab



Shelby  
Tube



Split  
Spoon



No  
Recovery

ST01.061

# C-K ASSOCIATES, INC.

## SOIL BORING LOG: P-4/B-6

|                               |                                     |                           |
|-------------------------------|-------------------------------------|---------------------------|
| CLIENT: Schuykill Metals Corp | LOCATION: Baton Rouge, LA           | PROJECT NO.: 24-502       |
| DRILLER: Singley              | PROJECT NAME: Solid Waste Permit    | X COORD.: 30 deg. 35' 10" |
| DATE DRILLED: 07/11-12/95     | DRILLING METHOD: Direct-push/Rotary | Y COORD.: 91 deg. 14' 59" |
| TOTAL DEPTH: 102.0            | WATER LEVEL (I): 9.0                | WATER LEVEL (S): 16.63    |
| LOGGED BY: B. Moore           | SURFACE ELEVATION: 44.6             | TOC ELEVATION: 47.47      |

| Depth<br>(ft bgs) | Core<br>Sample | O V A<br>(ppm) | Description  | USCS | Lith. | Well<br>Design | Remarks |
|-------------------|----------------|----------------|--|------|-------|----------------|---------|
| 52                |                |                |  |      |       |                |         |
| 54                |                |                |  |      |       |                |         |
| 56                |                | 0 *            | ---some silt and calcareous<br>nodules   | CL   |       |                |         |
| 58                |                |                |  |      |       |                |         |
| 60                |                | 0 *            | Very stiff gray and brown<br>Incohesive Slightly Silty CLAY,<br>brittle, dry slickensided, w/silt<br>pockets, calcareous nodules | CL   |       |                |         |
| 62                |                |                |  |      |       |                |         |
| 64                |                |                |  |      |       |                |         |
| 66                |                | 0 *            | Loose brown medium grained<br>SAND, wet  | SP   |       |                |         |
| 68                |                |                |  |      |       |                |         |
| 70                |                | 0 *            | Stiff gray CLAY w/Fe staining<br>and large Fe nodules, dry   | CL   |       |                |         |
| 72                |                |                |  |      |       |                |         |
| 74                |                |                |  |      |       |                |         |
| 76                |                | 0 *            | Firm gray Silty fine grained<br>SAND, wet  | SM   |       |                |         |
| 78                |                |                | ---some clay and Fe staining   |      |       |                |         |

### NOTES:

Approved: 



Initial Water Level



Static Water Level



Hand  
Grab



Shelby  
Tube



Split  
Spoon



No  
Recovery

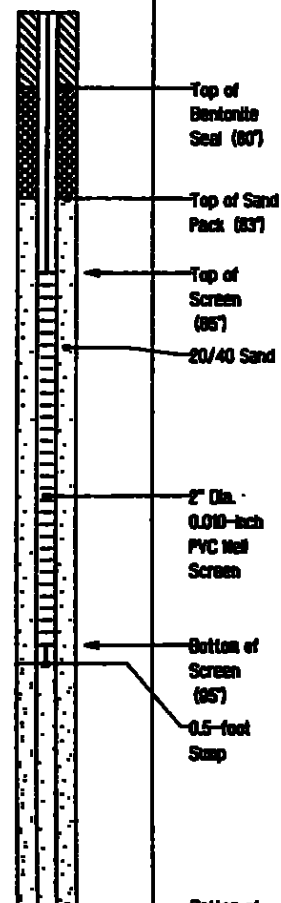
ST01.061

# C-K ASSOCIATES, INC.

## SOIL BORING LOG: P-4/B-6

|                               |                                     |                           |
|-------------------------------|-------------------------------------|---------------------------|
| CLIENT: Schuykill Metals Corp | LOCATION: Baton Rouge, LA           | PROJECT NO.: 24-502       |
| DRILLER: Singley              | PROJECT NAME: Solid Waste Permit    | X COORD.: 30 deg. 35' 10" |
| DATE DRILLED: 07/11-12/95     | DRILLING METHOD: Direct-push/Rotary | Y COORD.: 91 deg. 14' 59" |
| TOTAL DEPTH: 102.0            | WATER LEVEL (I): 9.0                | WATER LEVEL (S): 18.63    |
| LOGGED BY: B. Moore           | SURFACE ELEVATION: 44.6             | TOC ELEVATION: 47.47      |

| Depth<br>(ft bgs) | Core<br>Sample | O V A<br>(ppm) | Description   | USCS | Lith. | Well<br>Design | Remarks   |
|-------------------|----------------|----------------|---|------|-------|----------------|---|
| 78                |                |                |   | SM   |       |                |   |
| 80                |                | 0 *            | Loose gray fine grained SAND,<br>wet  | SP   |       |                | Top of Bentonite<br>Seal (80')                                      |
| 82                |                |                |   |      |       |                | Top of Sand<br>Pack (83')   |
| 84                |                |                |   |      |       |                | Top of<br>Screen<br>(85')   |
| 86                |                | 0 *            | ---fine to medium grained, dark<br>gray   |      |       |                | 20/40 Sand  |
| 88                |                |                |   |      |       |                |   |
| 90                |                | 0 *            | ---medium grained   |      |       |                | 2" Dia.<br>0.010-inch<br>PVC Well<br>Screen                         |
| 92                |                |                |   |      |       |                |   |
| 94                |                |                |   |      |       |                |   |
| 96                |                | 0 *            | ---medium to coarse grained   |      |       |                | Bottom of<br>Screen<br>(85')  |
| 98                |                |                |   |      |       |                | 0.5-foot<br>Stop  |
| 100               |                | 0 *            |   | CL   |       |                |   |
| 102               |                |                | Hard brown and gray Slightly<br>Silty CLAY w/sand pockets, dry  |      |       |                | Bottom of<br>Borehole<br>Note:<br>Boring drilled with<br>wet rotary |
| 104               |                |                | Boring terminated at 102' bgs<br>Note: Boring drilled w/wet<br>rotary. Initial water level<br>estimated from sample moisture. |      |       |                |   |



### NOTES:

Approved: SEW



Initial Water Level



Static Water Level



Hand  
Grab



Shelby  
Tube



Split  
Spoon



Total water  
Recovery  
estimated  
from sample  
moisture.

ST-106

# C-K ASSOCIATES, INC.

## SOIL BORING LOG: B-7

|                                |                                  |                      |
|--------------------------------|----------------------------------|----------------------|
| CLIENT: Schuylkill Metals Corp | LOCATION: Baton Rouge, LA        | PROJECT NO.: 24-502  |
| DRILLER: Singley               | PROJECT NAME: Solid Waste Permit | X COORD.: N/A        |
| DATE DRILLED: 07/5/95          | DRILLING METHOD: Direct-push     | Y COORD.: N/A        |
| TOTAL DEPTH: 30.0              | WATER LEVEL (I): 12.0            | WATER LEVEL (S): N/A |
| LOGGED BY: B. Moore            | SURFACE ELEVATION: 46.0          | TOC ELEVATION: N/A   |

| Depth<br>(ft bgs) | Core<br>Sample | O V A<br>(ppm) | Description  | USCS | Lith. | Well<br>Design | Remarks |
|-------------------|----------------|----------------|--|------|-------|----------------|---------|
| 0                 |                |                | Stiff light gray and brown CLAY<br>w/Fe stains and nodules, dry  | CL   |       |                |         |
| 2                 |                |                |  |      |       |                |         |
| 4                 |                |                | ---turning medium  |      |       |                |         |
| 6                 |                |                |  |      |       |                |         |
| 8                 |                |                | ---some very fine grained sand,<br>damp  |      |       |                |         |
| 10                |                |                | ---turning stiff, dry  |      |       |                |         |
| 12                |                |                | ---interbedded w/clayey sand,<br>wet   |      |       |                |         |
| 14                |                |                | Firm gray very fine grained<br>Clayey SAND, wet  | SC   |       |                |         |
| 16                |                |                | Firm gray coarse grained SAND,<br>wet  | SP   |       |                |         |
| 18                |                |                |  |      |       |                |         |
| 20                |                |                | Medium gray Sandy CLAY, damp   | CL   |       |                |         |
| 22                |                |                | Hard light gray and brown CLAY,<br>dry, w/Fe stains  | CL   |       |                |         |
| 24                |                |                | ---slickensided  |      |       |                |         |
| 26                |                |                | Very stiff light gray and brown<br>slightly Silty CLAY, dry  | CL   |       |                |         |
| 28                |                |                | ---Fe staining   |      |       |                |         |
| 30                |                |                | Boring terminated at 30' bgs<br>Note: Boring drilled by<br>direct-push technology. Initial<br>water level measured in<br>borehole. |      |       |                |         |
| 32                |                |                |  |      |       |                |         |
| 34                |                |                |  |      |       |                |         |

### NOTES:

Approved: *SEN*



Initial Water Level  
Static Water Level



Hand  
Grab



Shelby  
Tube



Split  
Spoon



No  
Recovery

OVALOG



LOG OF BORING NO. MW-1A

PAGE 1 of 1

Project Number : 9701400

Date Started : 3-15-99

Boring Location : N E

Drill Rig : FAILING 1500

Surface Elevation :

By : D. Jones

| SURFACE ELEVATION    |        |         |                                 |                         | GROUND WATER OBSERVATIONS  |                 | COHESION<br>(ksf) | DRY<br>DENSITY(pcf) | WATER<br>CONTENT(%) | Atterberg           |        | Grain Size |        |  | FOOTNOTES |
|----------------------|--------|---------|---------------------------------|-------------------------|--|-----------------|-------------------|---------------------|---------------------|---------------------|--------|------------|--------|--|-----------|
| DEPTH(ft)            | SYMBOL | SAMPLES | SPT (b/r) or<br>PENETROMETER(P) | OVA<br>READING<br>(ppm) | Ground water encountered at 40 ft.<br>bgs.   | LIQUID<br>LIMIT |                   |                     |                     | PLASTICITY<br>INDEX | % SAND | % SILT     | % CLAY |  |           |
| MATERIAL DESCRIPTION |        |         |                                 |                         |  |                 |                   |                     |                     |                     |        |            |        |  |           |
|                      |        |         |                                 |                         | Medium Brown Gray GRAVELLY SILT<br>(FILL) moist  |                 |                   |                     |                     |                     |        |            |        |  |           |
|                      |        |         |                                 |                         | Medium Stiff Brown Gray Mottled<br>CLAYEY SILT/SILTY CLAY (ML/CL)<br>moist                 |                 |                   |                     |                     |                     |        |            |        |  |           |
| 5                    |        |         |                                 |                         |  |                 |                   |                     |                     |                     |        |            |        |  |           |
| 10                   |        |         |                                 |                         | -becoming tan from 8 to 36 ft.<br>-less brown 10 to 18 ft.<br>-stiff below 12 ft.          |                 |                   |                     |                     |                     |        |            |        |  |           |
| 15                   |        |         |                                 |                         | -very stiff and brown below 15 ft.<br>-hard below 17 ft.<br>-siltier below 18 ft.          |                 |                   |                     |                     |                     |        |            |        |  |           |
| 20                   |        |         |                                 |                         |  |                 |                   |                     |                     |                     |        |            |        |  |           |
| 25                   |        |         |                                 |                         | -w/ black concretions at 22 ft.<br><br>-stiff below 26 ft.<br>-clayey from 26 ft to 28 ft. |                 |                   |                     |                     |                     |        |            |        |  |           |
| 30                   |        |         |                                 |                         |  |                 |                   |                     |                     |                     |        |            |        |  |           |
| 35                   |        |         |                                 |                         |  |                 |                   |                     |                     |                     |        |            |        |  |           |
| 40                   |        |         |                                 |                         | Loose Brown SAND (SP) saturated<br><br>-clay at bottom of sample                           |                 |                   |                     |                     |                     |        |            |        |  |           |
| 45                   |        |         |                                 |                         | Boring terminated at 44' bgs.  |                 |                   |                     |                     |                     |        |            |        |  |           |
| 50                   |        |         |                                 |                         |  |                 |                   |                     |                     |                     |        |            |        |  |           |

## BORING ADVANCEMENT METHOD

8" Auger 0-44'.  
8" Rotary Wash 0-44'.

## BORING ABANDONMENT METHOD

Monitor well MW-1A was installed in  
borehole.

## FOOTNOTES

03-02709009

| DEPT.  | SYMBOL | SAMPLES | SPT (b/r) or<br>PENETROMETER (p) | OVA<br>READING<br>(ppm) | GROUND WATER OBSERVATIONS                                   | COHESION<br>(kef) | DRY<br>DENSITY(pcf) | WATER<br>CONTENT(%) | Atterberg       |                     | Grain Size |        |        | FOOTNOTES |
|--|--------|---------|----------------------------------|-------------------------|---|-------------------|---------------------|---------------------|-----------------|---------------------|------------|--------|--------|-----------|
|  |        |         |                                  |                         | MATERIAL DESCRIPTION  |                   |                     |                     | LIQUID<br>LIMIT | PLASTICITY<br>INDEX | % SAND     | % SILT | % CLAY |           |
|  |        |         |                                  |                         | Ground water encountered at 34 feet bgs.                    |                   |                     |                     |                 |                     |            |        |        |           |
|  |        |         |                                  |                         | Stiff Brown CLAYEY SILT (ML) moist                          |                   |                     |                     |                 |                     |            |        |        |           |
|  |        |         |                                  |                         | -becoming medium and tan w/ concretions                     |                   |                     |                     |                 |                     |            |        |        |           |
|  |        |         |                                  |                         | -becoming soft and gray                                     |                   |                     |                     |                 |                     |            |        |        |           |
| 5  |        |         |                                  |                         |   |                   |                     |                     |                 |                     |            |        |        |           |
|  |        |         |                                  |                         | -becoming stiff   |                   |                     |                     |                 |                     |            |        |        |           |
| 10   |        |         |                                  |                         |   |                   |                     |                     |                 |                     |            |        |        |           |
|  |        |         |                                  |                         | -w/ less clay from 10-14'                                   |                   |                     |                     |                 |                     |            |        |        |           |
|  |        |         |                                  |                         | -becoming medium w/ trace sand                              |                   |                     |                     |                 |                     |            |        |        |           |
| 15   |        |         |                                  |                         |   |                   |                     |                     |                 |                     |            |        |        |           |
|  |        |         |                                  |                         | -becoming gray tan w/ little clay and trace sand moist      |                   |                     |                     |                 |                     |            |        |        |           |
|  |        |         |                                  |                         | Medium Stiff Gray Tan SILTY SAND (SM) moist                 |                   |                     |                     |                 |                     |            |        |        |           |
|  |        |         |                                  |                         | Medium Stiff Gray Tan CLAYEY SAND (SC) w/ little clay moist |                   |                     |                     |                 |                     |            |        |        |           |
| 20   |        |         |                                  |                         |   |                   |                     |                     |                 |                     |            |        |        |           |
|  |        |         |                                  |                         | Medium Stiff Brown Gray Tan CLAYEY SILT (ML) moist          |                   |                     |                     |                 |                     |            |        |        |           |
|  |        |         |                                  |                         | Medium Stiff Gray Tan SILTY CLAY (CL) moist                 |                   |                     |                     |                 |                     |            |        |        |           |
|  |        |         |                                  |                         | -becoming very stiff and brown w/ trace sand                |                   |                     |                     |                 |                     |            |        |        |           |
|  |        |         |                                  |                         | -w/ trace ferric nodules                                    |                   |                     |                     |                 |                     |            |        |        |           |
| 30   |        |         |                                  |                         |   |                   |                     |                     |                 |                     |            |        |        |           |
|  |        |         |                                  |                         | -becoming stiff   |                   |                     |                     |                 |                     |            |        |        |           |
|  |        |         |                                  |                         | -becoming soft w/ little sand at bottom                     |                   |                     |                     |                 |                     |            |        |        |           |
| 35   |        |         |                                  |                         |   |                   |                     |                     |                 |                     |            |        |        |           |
|  |        |         |                                  |                         | Loose Tan SAND (SP) saturated w/ clay at bottom of sample   |                   |                     |                     |                 |                     |            |        |        |           |
|  |        |         |                                  |                         | Boring terminated at 36' bgs.                               |                   |                     |                     |                 |                     |            |        |        |           |
| 40   |        |         |                                  |                         |   |                   |                     |                     |                 |                     |            |        |        |           |
|  |        |         |                                  |                         |   |                   |                     |                     |                 |                     |            |        |        |           |
| 45   |        |         |                                  |                         |   |                   |                     |                     |                 |                     |            |        |        |           |
|  |        |         |                                  |                         |   |                   |                     |                     |                 |                     |            |        |        |           |
| 50   |        |         |                                  |                         |   |                   |                     |                     |                 |                     |            |        |        |           |
| BORING ADVANCEMENT METHOD                      |        |         |                                  |                         |   | FOOTNOTES         |                     |                     |                 |                     |            |        |        |           |
| Auger 0-36'.                                   |        |         |                                  |                         |   |                   |                     |                     |                 |                     |            |        |        |           |
| Rotary Wash 0-36'.                             |        |         |                                  |                         |   |                   |                     |                     |                 |                     |            |        |        |           |
| BORING ABANDONMENT METHOD                      |        |         |                                  |                         |   |                   |                     |                     |                 |                     |            |        |        |           |
| Monitor Well MW-14A was installed in borehole. |        |         |                                  |                         |   |                   |                     |                     |                 |                     |            |        |        |           |



## LOG OF BORING NO. MW-15A

PAGE 1 of 1

Project Number : 9701400

Date Started : 3-16-99

Boring Location : N E

Drill Rig : Falling 1500

Surface Elevation :

By : D. Jones

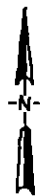
| DEPTH(ft.)  | SYMBOL | SAMPLES | SPT (b/f) or<br>PENETROMETER(p) | OVA<br>READING<br>(ppm) | GROUND WATER OBSERVATIONS  | COHESION<br>(ksf) | DRY<br>DENSITY(pcf) | WATER<br>CONTENT(%) | Atterberg       |                     | Grain Size |        |        | FOOTNOTES |
|---|--------|---------|---------------------------------|-------------------------|--|-------------------|---------------------|---------------------|-----------------|---------------------|------------|--------|--------|-----------|
|   |        |         |                                 |                         | MATERIAL DESCRIPTION   |                   |                     |                     | LIQUID<br>LIMIT | PLASTICITY<br>INDEX | % SAND     | % SILT | % CLAY |           |
| 5   |        |         |                                 |                         | Ground water encountered at 36 ft<br>bgs rose to 35.55 after 15 min.   |                   |                     |                     |                 |                     |            |        |        |           |
|   |        |         |                                 |                         | Stiff Brown Tan CLAYEY SILT (ML)<br>moist<br>-becoming gray and mottled<br>-becoming soft  |                   |                     |                     |                 |                     |            |        |        |           |
| 10  |        |         |                                 |                         | Soft Brown Gray SILTY CLAY (CL) w/<br>trace sand and roots moist<br>-becoming medium<br><br>-becoming stiff, tan and mottled<br><br>-w/ black concretions<br><br>-becoming brown tan |                   |                     |                     |                 |                     |            |        |        |           |
| 15  |        |         |                                 |                         |  |                   |                     |                     |                 |                     |            |        |        |           |
| 20  |        |         |                                 |                         | Medium Stiff Brown Tan CLAYEY SILT<br>(ML) moist<br>-becoming soft brown tan silt wet<br><br>-becoming gray and moist  |                   |                     |                     |                 |                     |            |        |        |           |
| 25  |        |         |                                 |                         |  |                   |                     |                     |                 |                     |            |        |        |           |
| 30  |        |         |                                 |                         | Stiff Brown Tan SILTY CLAY (CL) moist<br>-w/ soft gray silt lense<br><br>-becoming gray tan<br><br>-becoming moist   |                   |                     |                     |                 |                     |            |        |        |           |
| 35  |        |         |                                 |                         |  |                   |                     |                     |                 |                     |            |        |        |           |
|   |        |         |                                 |                         | Loose Tan SAND (SP) saturated  |                   |                     |                     |                 |                     |            |        |        |           |
| 40  |        |         |                                 |                         | Stiff Brown Gray CLAY (CL)<br>dry<br>Boring terminated at 40' bgs.   |                   |                     |                     |                 |                     |            |        |        |           |
| 45  |        |         |                                 |                         |  |                   |                     |                     |                 |                     |            |        |        |           |
| 50  |        |         |                                 |                         |  |                   |                     |                     |                 |                     |            |        |        |           |
| BORING ADVANCEMENT METHOD                         |        |         |                                 |                         | FOOTNOTES  |                   |                     |                     |                 |                     |            |        |        |           |
| 3" Auger 0-40'.<br>3" Rotary Wash 0-40'.          |        |         |                                 |                         |  |                   |                     |                     |                 |                     |            |        |        |           |
| BORING ABANDONMENT METHOD                         |        |         |                                 |                         |  |                   |                     |                     |                 |                     |            |        |        |           |
| Monitor well MW-15A was installed in<br>borehole. |        |         |                                 |                         |  |                   |                     |                     |                 |                     |            |        |        |           |

03-02709011

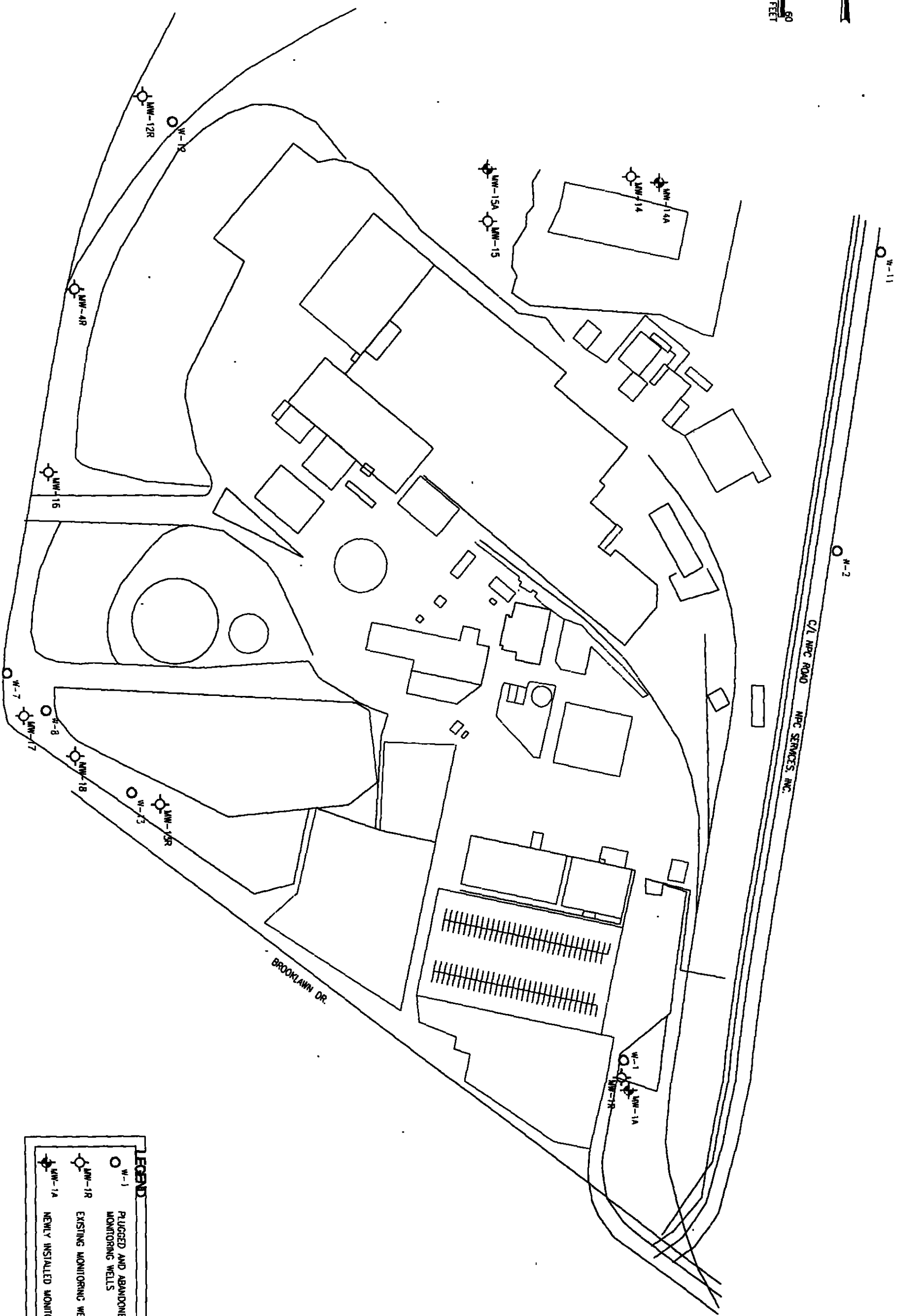
| DEPTH(ft)  | SYMBOL | SAMPLES | SPT (b/ft) or<br>PENETROMETER(p) | OVA<br>READING<br>(ppm) | GROUND WATER OBSERVATIONS  | COHESION<br>(ksf) | DRY<br>DENSITY(pcf) | WATER<br>CONTENT(%) | Atterberg       |                     | Grain Size |        |        | FOOTNOTES |
|--|--------|---------|----------------------------------|-------------------------|--|-------------------|---------------------|---------------------|-----------------|---------------------|------------|--------|--------|-----------|
|  |        |         |                                  |                         | MATERIAL DESCRIPTION   |                   |                     |                     | LIQUID<br>LIMIT | PLASTICITY<br>INDEX | % SAND     | % SILT | % CLAY |           |
|  |        |         |                                  |                         | Ground water encountered at 40 ft.<br>bgs.                                 |                   |                     |                     |                 |                     |            |        |        |           |
|  |        |         |                                  |                         | Medium Brown Gray GRAVELLY SILT<br>(FILL) moist                            |                   |                     |                     |                 |                     |            |        |        |           |
|  |        |         |                                  |                         | Medium Stiff Brown Gray Mottled<br>CLAYEY SILT/SILTY CLAY (ML/CL)<br>moist |                   |                     |                     |                 |                     |            |        |        |           |
| 5  |        |         |                                  |                         |  |                   |                     |                     |                 |                     |            |        |        |           |
|  |        |         |                                  |                         | -becoming tan from 8 to 36 ft.   |                   |                     |                     |                 |                     |            |        |        |           |
| 10   |        |         |                                  |                         | -less brown 10 to 18 ft.   |                   |                     |                     |                 |                     |            |        |        |           |
|  |        |         |                                  |                         | -stiff below 12 ft.  |                   |                     |                     |                 |                     |            |        |        |           |
|  |        |         |                                  |                         |  |                   |                     |                     |                 |                     |            |        |        |           |
| 15   |        |         |                                  |                         | -very stiff and brown below 15 ft.   |                   |                     |                     |                 |                     |            |        |        |           |
|  |        |         |                                  |                         | -hard below 17 ft.   |                   |                     |                     |                 |                     |            |        |        |           |
|  |        |         |                                  |                         | -siltier below 18 ft.  |                   |                     |                     |                 |                     |            |        |        |           |
| 20   |        |         |                                  |                         |  |                   |                     |                     |                 |                     |            |        |        |           |
|  |        |         |                                  |                         | -w/ black concretions at 22 ft.  |                   |                     |                     |                 |                     |            |        |        |           |
|  |        |         |                                  |                         |  |                   |                     |                     |                 |                     |            |        |        |           |
| 25   |        |         |                                  |                         |  |                   |                     |                     |                 |                     |            |        |        |           |
|  |        |         |                                  |                         | -stiff below 26 ft.  |                   |                     |                     |                 |                     |            |        |        |           |
|  |        |         |                                  |                         | -clayey from 26 ft to 28 ft.   |                   |                     |                     |                 |                     |            |        |        |           |
| 30   |        |         |                                  |                         |  |                   |                     |                     |                 |                     |            |        |        |           |
|  |        |         |                                  |                         |  |                   |                     |                     |                 |                     |            |        |        |           |
| 35   |        |         |                                  |                         |  |                   |                     |                     |                 |                     |            |        |        |           |
|  |        |         |                                  |                         | -w/ ferric nodules at 36 ft.   |                   |                     |                     |                 |                     |            |        |        |           |
| 40   |        |         |                                  |                         |  |                   |                     |                     |                 |                     |            |        |        |           |
|  |        |         |                                  |                         | Loose Brown SAND (SP) saturated  |                   |                     |                     |                 |                     |            |        |        |           |
|  |        |         |                                  |                         | -clay at bottom of sample  |                   |                     |                     |                 |                     |            |        |        |           |
| 45   |        |         |                                  |                         | Boring terminated at 44' bgs.  |                   |                     |                     |                 |                     |            |        |        |           |
|  |        |         |                                  |                         |  |                   |                     |                     |                 |                     |            |        |        |           |
| 50   |        |         |                                  |                         |  |                   |                     |                     |                 |                     |            |        |        |           |
| BORING ADVANCEMENT METHOD                        |        |         |                                  |                         |  | FOOTNOTES         |                     |                     |                 |                     |            |        |        |           |
| 8" Auger 0-44'.<br>8" Rotary Wash 0-44'.         |        |         |                                  |                         |  |                   |                     |                     |                 |                     |            |        |        |           |
| BORING ABANDONMENT METHOD                        |        |         |                                  |                         |  |                   |                     |                     |                 |                     |            |        |        |           |
| Monitor well MW-1A was installed in<br>borehole. |        |         |                                  |                         |  |                   |                     |                     |                 |                     |            |        |        |           |







0 30 60  
APPROX SCALE IN FEET




**LEGEND**

- MW-1  
PLUGGED AND ABANDONED  
MONITORING WELLS
- ⊗ MW-1R  
EXISTING MONITORING WELLS
- ⊗ MW-1A  
NEWLY INSTALLED MONITORING WELLS

NOTE:

FIGURE BASED ON EXIDE DRAWING:  
720-C:\DRAWINGS\SCHUYLKILL\WASTECCELL\CLOSED WASTE AREAS.DWG



ENVIRONMENTAL AND GEOTECHNICAL CONSULTANTS

DATE: 22 April 99

|                               |                     |
|-------------------------------|---------------------|
| DESIGNED BY: [Signature]      | DATE: 22 April 99   |
| CHECKED BY: [Signature]       | DATE: 22 April 99   |
| DATE REVIEWED BY: [Signature] | DATE: 22 April 99   |
| PROJECT NO: 720-C             | FILE NO: 720-C-0001 |

**WELL LOCATION DIAGRAM**

EXIDE CORPORATION  
BATON ROUGE SMELTER  
BATON ROUGE, LOUISIANA

FIGURE  
**2**

**APPENDIX J**

**SITE GEOLOGY**

The approximate locations of surficial deposits in the general vicinity of the plant are shown on Figure J-1. The site of the Schuylkill Metals Corporation Plant, located northwest of Baton Rouge in East Baton Rouge Parish, is situated on the Prairie Terrace of Pleistocene Age.

Seventeen soil test borings were drilled at the site between September 25, 1980, and January 24, 1981, and two additional borings were drilled between December 7 and 21, 1984, generally using either a truck or buggy-mounted rotary-type drilling rig. The approximate locations of the borings are shown on Figure J-2, Site Plan and Boring Locations.

Eight of the borings, EB-1, EB-2, EB-4A and EB-5, EB-6, EB-7, EB-8 and EB-8A, were strictly exploratory in nature and were continuously sampled full depth or to 8 to 10 feet with samples below 8 to 10 feet on 3- to 5-foot centers. These borings were drilled to depths of 30 to 50 feet with the exception of EB-8, which was terminated at 18 feet. Boring EB-3 could not be drilled due to the large thickness of slag beneath the proposed location. Boring EB-4 was drilled into 6 feet of slag and then was offset 125 feet due to the slag thickness and drilled as EB-4A. These eight exploratory borings were grouted full depth after drilling.

The remaining nine borings, W-1 through W-4 and W-7 through W-13, were drilled for exploratory purposes in addition to observation well installation. Borings W-5 and W-6 were not drilled, again due to the thickness of slag. Borings W-1 and W-7 were continuously sampled for their full depths of 46 feet and 30 feet, respectively. Borings W-2, W-3, W-4 and W-8 through W-11 were continuously sampled in the upper 10 feet and then samples were obtained on 3- to 5-foot centers below 10 feet to total depths of

40 to 50 feet below grade. Samples were collected on 5-foot centers for the 50-foot depth of Boring B-13 and the 37-foot depth of Boring W-12. Two-inch diameter plastic pipe observation wells were then installed in each of these "W" boreholes. All wells had 10-foot long well screens at the bottom. Sand was placed in the annulus adjacent to the screen and cement grout placed above the screen with a layer of bentonite pellets between. A concrete cap was placed at the ground surface in order to impede surface water infiltration. Installation of these wells was performed in accordance with Part C of the Analytical Operating Procedures Manual.

A total of 870 lineal feet were drilled, including 386 feet of which were continuously sampled and 53 feet which were augered.

The soil conditions encountered are presented in graphical form on the generalized subsurface soil profiles in Figures J-3 through J-5. Basically, on the major portion of the site, the boring logs show a soil profile beneath any slag grading from silty clays and clayey silts near the surface to clay at depth. A brief description of the soil conditions is given below.

In the relatively high flat portion of the plant area, the soil conditions typically consist of about 8 to 12 feet of medium to stiff silty clay or clayey silt overlying stiff to hard clays to a depth of at least 50 feet below grade. These clays often contain layers of silty clay, clayey silt, sandy silt and silty sand up to 5 to 6-1/2 feet in thickness which do not appear to be continuous across the plant site.

Boring W-8 and W-9 were drilled in the lower water treatment pond area. In W-8, the stiff to very stiff clay was encountered below 18 inches of very stiff silty clay. In W-9, the stiff clay was encountered below 3-1/2 feet of surface slag.

Borings W-4 and W-7 were drilled at the western edge of the site adjacent to Bayou Baton Rouge. In W-4, very loose sandy silt was encountered to a depth of 6-1/2 feet,

followed by very soft to soft clayey silt extending to a depth of 9-1/2 feet prior to penetrating the stiff to very stiff clay. In W-7, layers of loose silt and soft to stiff clays were observed to a depth of 6 feet and overlie the stiff to very stiff clay.

Boring EB-7 was drilled near the bottom of the old drainageway at the northern edge of the property. Beneath 6 feet of rubble fill (which is being removed), a 2-foot layer of silty clay overlies the stiff clay. A 6-foot thick sandy silt layer was encountered at a depth of 10-1/2 feet to about 17 feet.

Boring EB-8 was drilled on the northeast edge of the property. The boring penetrated 18 feet of coke prior to encountering natural soils. This coke was pushed onto the site from the adjacent property and apparently into an old drainage ditch. This borehole was abandoned after determining the depth of the coke.

Based on logs from existing water wells in the vicinity of the site, the soil cross-section to a depth of about 500 feet below the plant site was prepared and is presented in Figure J-6. Well logs obtained in the major industrial area south of the site extend to depths of 3,000 feet below the plant site elevation. These deeper logs are summarized on the cross-section presented in Figure J-7. Also shown are measured permeabilities in the "1200-ft," "1500-ft," and "2000-ft" sands.

**APPENDIX 12**

**CONTAINMENT BUILDING CERTIFICATION DOCUMENT**

# **EXIDE CORPORATION**

**Baton Rouge, Louisiana**

## **HAZARDOUS WASTE CONTAINMENT BUILDING CERTIFICATION**

**NOVEMBER 1999**

**PREPARED BY:**

**C-K ASSOCIATES, INC.  
17170 PERKINS ROAD  
BATON ROUGE, LOUISIANA 70810**

**Project Number 024-810**

# **EXIDE CORPORATION**

December 13, 1999

- Mr. Michael D. Vince MPA  
Administrator  
Louisiana Department of Environmental Quality  
P.O. Box 74040  
Baton Rouge, LA 70874

RE: Class I Permit Modification – Engineering Certification, Containment Building  
and Revised Part A Permit Application  
Exide Corporation, Baton Rouge Smelter  
LAD008184137

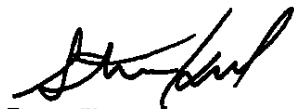
Dear Mr. Vince:

Enclosed please find 3 copies of this Class 1 Permit Modification, Exide Corporation's Engineering Certification for the Containment Building. Also please find enclosed three copies of a revised Part A permit application that addresses the certification of the Containment Building. As a part of this permit modification, Exide is also requesting a name change for the facility, from Exide Corporation, Schuylkill Metals Division, to Exide Corporation, Baton Rouge Smelter.

Our check, number 4481032333, for \$1,000.00 to cover the cost of this permit modification is enclosed.

I would like to thank you for the assistance your staff has shown me during the completion of this project, and I look forward to working with them in the future. If you have any questions or require additional information, please call me (504) 775-3040 extension 142.

Sincerely,



Steve Krul  
Environmental Manager

cc: US EPA Region 6 (2 copies)  
Karla Vidrine – LDEQ, Permits Division  
Fred Ganster – Exide Environmental Operations

P. O. Box 74040 • Baton Rouge, LA 70874  
Phone: 225-775-3040 • Fax: 225-775-3057



**EXIDE CORPORATION**  
**Baton Rouge, Louisiana**

**HAZARDOUS WASTE  
CONTAINMENT BUILDING  
CERTIFICATION**

**NOVEMBER 1999**

**PREPARED BY:**

**C-K ASSOCIATES, INC.  
17170 PERKINS ROAD  
BATON ROUGE, LOUISIANA 70810**

**Project Number 024-810**

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## **CHAPTER 18**

### **CONTAINMENT BUILDINGS**

#### **INTRODUCTION**

The containment building at Exide Corporation's Baton Rouge Smelter encompasses two main areas (Figure 1). Area 1 is the Raw Material Storage Area, which was constructed in 1991, and is adjacent to the Production Area (Area 3, which is not used for hazardous waste storage). Area 2 is the Paste Storage Area, which was upgraded in 1992.

The Raw Material Storage Area (Area 1) is used for the storage and mixing of dry hazardous wastes, scrap metals, drosses, slags, pastes, and battery components (lead bearing materials) prior to processing through the furnaces in the Production Area of the plant (Area 3).

The Paste Storage Area (Area 2) is used for the initial staging of neutralized lead paste (paste) from the battery breaking/desulfurization process prior to moving the paste to the Raw Material Storage Area (Area 1), for mixing and staging, prior to processing through the furnaces in the Production Area (Area 3) of the plant. The paste stored in this area is visibly moist, but does not normally contain any free standing liquids. Depending upon the operating conditions within the battery breaking/desulfurization process or the length of time the paste is stored in the Paste Storage Area, some minor draining of deminimus liquids from the paste may occur.

#### **§1801 Applicability**

The requirements of this Section apply to owners or operators who store or treat hazardous waste in units designed and operated under LAC 33:V.1802. These provisions became effective on February 18, 1993, although an owner or operator may have notified EPA or the administrative authority of his intent to be bound by this Section or its federal equivalent at an earlier time. The owner or operator is not subject to the definition of land disposal in LAC 33:V.2203 or R.S. 30:2193 provided that the unit:

1. is a completely enclosed, self-supporting structure that is designed and constructed of manmade materials of sufficient strength and thickness to support themselves, the waste contents, and any personnel and heavy equipment that operate within the unit, and to prevent failure due to pressure gradients, settlement, compression, uplift, physical contact with the hazardous wastes to which they are exposed, climatic conditions, and the stresses of daily operation, including the movement of heavy equipment within the unit and contact of such equipment with containment walls;

#### **RESPONSE**

The containment building is a self-supporting structure, completely enclosed with a floor, a roof, and walls, some of which are partial walls necessary to accommodate operations. The ventilation system for point sources within the containment building provides a constant inward air flow at these openings, thereby minimizing the potential for fugitive emissions from the building openings. The Raw Material Storage Area

(Area 1) was constructed in 1991. In 1992 Woodward-Clyde Consultants (WCC) submitted a professional engineer's certification document demonstrating that the design and construction of the building base in the Raw Material Storage Area was in "substantial conformance with the plans developed for this project". In 1992 the Paste Storage Area was also upgraded. In 1994 WCC submitted a professional engineer's certification document demonstrating that the design and construction of the building upgrades in the Paste Storage Area "met the requirements outlined in the plans and specification...". Copies of each of these documents are included in Appendix A. Additionally, this building has adequately handled operations similar to its current operation for approximately seven years in Area 1 and six years in Area 2. This history of adequate structural strength is the basis for determining that Exide's containment building is of sufficient structural strength. Specific design data from the initial design of the building is not available.

The floors and walls of Exide's containment building storage areas are the primary barrier system of the containment building. The primary barrier system is constructed of man-made materials designed to withstand, the movement of, and contact with personnel, waste, and handling equipment during the operating life of the unit and are appropriate for the physical and chemical characteristics of the lead bearing materials to be managed. Sketches of the floor constructions in the storage areas (Areas 1 and 2) are included with the professional engineer's certification documents in Appendix A. These sketches depict each area's barrier system.

2. has a primary barrier that is designed to be sufficiently durable to withstand the movement of personnel, wastes, and handling equipment within the unit;

#### **RESPONSE**

The primary barrier system (floors, walls, and roof) of Exide's containment building is designed to withstand the movement of personnel, waste, and handling equipment within the unit during the operating life of the unit and is appropriate for the physical and chemical characteristics of the lead bearing materials to be managed on the primary barrier. Sketches of the floor construction in the storage areas (Areas 1 and 2) are included with the professional engineer's certification documents in Appendix A. These sketches depict the primary barrier system in the Raw Material Storage Area and the Paste Storage Area.

The Raw Material Storage Area (Area 1) was constructed in 1991. In 1992 WCC submitted a professional engineer's certification document demonstrating that the design and construction of the building base in the Raw Material Storage Area was in "substantial conformance with the plans developed for this project". In 1992 the Paste Storage Area was also upgraded. In 1994 WCC submitted a professional engineer's certification document demonstrating that the design and construction of the building upgrades in the Paste Storage Area "met the requirements outlined in the plans and specification...". Copies of each of these documents are

Included in Appendix A. Additionally, this building has adequately handled operations similar to its current operation for approximately seven years in Area 1 and six years in Area 2. This history of adequate structural strength is the basis for determining that Exide's containment building is of sufficient structural strength. Specific design data from the initial design of the building is not available.

3. when used to manage liquids:
  - a. has a primary barrier designed and constructed of materials to prevent migration of hazardous constituents into the barrier;
  - b. has a liquid collection system designed and constructed of materials to minimize the accumulation of liquid on the primary barrier; and
  - c. has a secondary containment system designed and constructed of materials to prevent migration of hazardous constituents into the barrier, with a leak detection and liquid collection system capable of detecting, collecting, and removing leaks of hazardous constituents at the earliest practicable time, unless the unit has been granted a variance from the secondary containment system requirements under LAC 33:V.1802.B.4;

**RESPONSE**

Exide acknowledges the above citation, but does not actively manage liquids within the containment building. Occasionally, some minor draining of de minimus liquids may occur from the material in the Paste Storage Area. If this occurs, Exide will take measures to collect and remove the liquid as soon as possible (via a collection sump or absorbent materials). As necessary, Exide may also apply small amounts of water to the lead bearing materials within the containment building for the purpose of dust suppression. This activity should not generate any free standing liquids within the building.

4. has controls as needed to permit fugitive dust emissions to meet the no visible emission standard in LAC 33:V.1802.C.1.d; and

**RESPONSE**

Exide's containment building is operated with a ventilation system to permitted point sources. This ventilation generally provides inward air flow (negative pressure) on the building. In addition, liquids are occasionally used on the lead bearing materials within the containment building for dust suppression purposes. These controls are used to ensure that the materials stored within the containment building do not generate any visible emissions.

5. has been designed and is operated to ensure containment and prevent the tracking of materials from the unit by personnel or equipment.

**RESPONSE**

Exide operates two vehicle wash stations (Figure 1) at the main entrances to the containment building to ensure the containment of wastes and to prevent tracking of wastes. All vehicles exiting the building are required to

use the vehicle washes to remove any accumulated waste prior to departure from the building.

**§1802 Design and Operating Standards**

- A. All containment buildings must comply with the following design standards:
1. the containment building must be completely enclosed with a floor, walls, and a roof to prevent exposure to the elements, (e.g., precipitation, wind, run-on) and to ensure containment of managed wastes;

**RESPONSE**

Exide's containment building is completely enclosed with floors, walls (primary barrier system) and a roof, with some of the walls providing openings necessary to accommodate operations. The ventilation system for the containment building keeps a constant inward air flow (negative pressure) on these openings which minimizes the potential for any fugitive emissions. These controls prevent the exposure of the lead bearing materials within the containment building to the elements, and ensure their containment.

2. the floor and containment walls of the unit, including the secondary containment system if required under LAC 33:V.1802.B, must be designed and constructed of materials of sufficient strength and thickness to support themselves, the waste contents, and any personnel and heavy equipment that operate within the unit and to prevent failure due to pressure gradients, settlement, compression, uplift, physical contact with the hazardous wastes to which they are exposed, climatic conditions, and the stresses of daily operation, including the movement of heavy equipment within the unit and contact of such equipment with containment walls. The unit must be designed so that it has sufficient structural strength to prevent collapse or other failure. All surfaces to be in contact with hazardous wastes must be chemically compatible with those wastes. The administrative authority will consider standards established by professional organizations generally recognized by the industry, such as the American Concrete Institute (ACI) and the American Society of Testing Materials (ASTM), in judging the structural integrity requirements of LAC 33:V.1802.A. If appropriate to the nature of the waste management operation to take place in the unit, an exception to the structural strength requirement may be made for light-weight doors and windows that meet these criteria:
  - a. they provide an effective barrier against fugitive dust emissions under LAC 33:V.1802.C.1.d; and
  - b. the unit is designed and operated in a fashion that ensures that wastes will not actually come in contact with these openings;

**RESPONSE**

The floors and walls of Exide's containment building are designed to withstand the movement of personnel, waste, and handling equipment within the unit during the operating life of the unit and are appropriate for the physical and chemical characteristics of the

lead bearing materials to be managed within the containment building. A sketch of the floor construction in the storage areas (Areas 1 and 2) is included with the professional engineer's certification documents in Appendix A. These sketches depict the floors and walls in the Raw Material Storage Area and the Paste Storage Area.

The Raw Material Storage Area (Area 1) was constructed in 1991. In 1992 WCC submitted a professional engineer's certification document demonstrating that the design and construction of the building base in the Raw Material Storage Area was in "substantial conformance with the plans developed for this project". In 1992 the Paste Storage Area was also upgraded. In 1994 WCC submitted a professional engineer's certification document demonstrating that the design and construction of the building upgrades in the Paste Storage Area "met the requirements outlined in the plans and specification...". Copies of each of these documents are included in Appendix A. Additionally, this building has adequately handled operations similar to its current operation for approximately seven years in Area 1 and six years in Area 2. This history of adequate structural strength is the basis for determining that Exide's containment building is of sufficient structural strength. Specific design data from the initial design of the building is not available.

3. incompatible hazardous wastes or treatment reagents must not be placed in the unit or its secondary containment system if they could cause the unit or secondary containment system to leak, corrode, or otherwise fail;

**RESPONSE**

Exide only manages lead bearing materials within the containment building. No incompatible wastes or treatment reagents will be placed in the unit or its secondary containment system.

4. a containment building must have a primary barrier designed to withstand the movement of personnel, waste, and handling equipment in the unit during the operating life of the unit and be appropriate for the physical and chemical characteristics of the waste to be managed.

**RESPONSE**

Exide's containment building is completely enclosed with floors, walls (primary barrier system) and a roof, with some of the walls providing openings necessary to accommodate operations. The ventilation system for the containment building keeps a constant inward air flow (negative pressure) on these openings which minimizes the potential for any fugitive emissions. These controls prevent the exposure of the lead bearing materials within the containment building to the elements, and ensure their containment.

The total building that encompasses the hazardous waste containment building includes three separate areas. The first area is the production/operation area (Area 3) and is not used for hazardous waste storage. Contiguous to this area is the Raw Material Storage Area (Area 1) that was constructed in 1991. In 1992 the third portion of the building, the Paste Storage Area (Area 2) was upgraded for additional waste storage space. In 1992 WCC submitted a professional engineer's certification document demonstrating that the general design and construction of the building base in Area 1 was in "substantial conformance with the plans developed for this project." In 1994 WCC submitted a professional engineer's certification document demonstrating that the general design and construction of the building base in Area 2 "meet the requirements outlined in the plans and specification . . .". A copy of each of these documents are included in Appendix A. Additionally, this building has adequately handled operations similar to its current operation for approximately seven years in Area 1 and six years in Area 2. This history of adequate structural strength is the basis for assuming the building is of sufficient structural strength. Specific design data from the initial design of the building is not available. Exide's containment building storage areas have primary barrier systems designed to withstand the movement of personnel, waste, and handling equipment in the unit during the operating life of the unit and be appropriate for the physical and chemical characteristics of the waste to be managed. A sketch of the floor constructions in the waste storage areas (Areas 1 and 2) are included with the professional engineer's certification letters in Appendix A.

- B. For a containment building used to manage hazardous wastes containing free liquids or treated with free liquids (the presence of which is determined by the paint filter test, a visual examination, or other appropriate means), the owner or operator must include:
1. a primary barrier designed and constructed of materials to prevent the migration of hazardous constituents into the barrier (e.g., a geomembrane covered by a concrete wear surface);

#### **RESPONSE**

Exide acknowledges the above citation, but does not actively manage liquids within the containment building. Occasionally, some minor draining of de minimus liquids may occur from the material in the Paste Storage Area. If this occurs, Exide will take measures to collect and remove the liquid as soon as possible (via a collection sump or absorbent materials). As necessary, Exide may also apply small amounts of water to the lead bearing materials within the containment building for the purpose of dust suppression. This activity should not generate any free standing liquids within the building.



2. a liquid collection and removal system to minimize the accumulation of liquid on the primary barrier of the containment building:
  - a. the primary barrier must be sloped to drain liquids to the associated collection system; and
  - b. liquids and waste must be collected and removed to minimize hydraulic head on the containment system at the earliest practicable time;

#### **RESPONSE**

Exide acknowledges the above citation, but does not actively manage liquids within the containment building. Occasionally, some minor draining of de minimus liquids may occur from the material in the Paste Storage Area. If this occurs, Exide will take measures to collect and remove the liquid as soon as possible using a collection sump within the area or absorbent materials. As necessary, Exide may also apply small amounts of water to the lead bearing materials within the containment building for the purpose of dust suppression. This activity should not generate any free standing liquids within the building.

3. a secondary containment system including a secondary barrier designed and constructed to prevent migration of hazardous constituents into the barrier and a leak detection system that is capable of detecting failure of the primary barrier and collecting accumulated hazardous wastes and liquids at the earliest practicable time;
  - a. the requirements of the leak detection component of the secondary containment system are satisfied by installation of a system that is, at a minimum:
    - i. constructed with a bottom slope of one percent or more; and
    - ii. constructed of a granular drainage material with a hydraulic conductivity of  $1 \times 10^{-5}$  cm/sec or more and a thickness of 12 inches (30.5 cm) or more, or constructed of synthetic or geonet drainage materials with a transmissivity of  $3 \times 10^{-5}$  m<sup>2</sup>/sec or more;
  - b. if treatment is to be conducted in the building, an area in which such treatment will be conducted must be designed to prevent the release of liquids, wet materials, or liquid aerosols to other portions of the building;
  - c. the secondary containment system must be constructed of materials that are chemically resistant to the waste and liquids managed in the containment building and of sufficient strength and thickness to prevent collapse under the pressure exerted by overlaying materials and by any equipment used in the containment building. (Containment buildings can serve as secondary containment systems for tanks placed within the building under certain conditions. A containment building can serve as an external liner system for a tank, provided it meets the requirements of LAC 33:V.1907.D.1. In addition, the containment

building must meet the requirements of LAC 33:V.1907.B and C.1 and 2 to be considered an acceptable secondary containment system for a tank.)

**RESPONSE**

Exide acknowledges the above citation, but does not actively manage liquids within the containment building. Occasionally, some minor draining of de minimus liquids may occur from the material in the Paste Storage Area. If this occurs, Exide will take measures to collect and remove the liquid as soon as possible using a collection sump within the area or absorbent materials. As necessary, Exide may also apply small amounts of water to the lead bearing materials within the containment building for the purpose of dust suppression. This activity should not generate any free standing liquids within the building.

4. for existing units other than 90-day generator units, the administrative authority or EPA may delay the secondary containment requirement for up to two years, based on a demonstration by the owner or operator that the unit substantially meets the standards of this Section. In making this demonstration, the owner or operator must:
  - a. have provided written notice to the administrative authority of their request by November 16, 1992. This notification must describe the unit and its operating practices with specific reference to the performance of existing containment systems and specific plans for retrofitting the unit with secondary containment;
  - b. respond to any comments from the administrative authority on these plans within 30 days; and
  - c. fulfill the terms of the revised plans, if such plans are approved by the administrative authority.

**RESPONSE**

Exide acknowledges the above citation, but does not actively manage liquids within the containment building. Occasionally, some minor draining of de minimus liquids may occur from the material in the Paste Storage Area. If this occurs, Exide will take measures to collect and remove the liquid as soon as possible using a collection sump within the area or absorbent materials. As necessary, Exide may also apply small amounts of water to the lead bearing materials within the containment building for the purpose of dust suppression. This activity should not generate any free standing liquids within the building.

- C. Owners or operators of all containment buildings must:
  1. use controls and practices to ensure containment of the hazardous waste within the unit; and, at a minimum:
  - 2.

- a. maintain the primary barrier to be free of significant cracks, gaps, corrosion, or other deterioration that could cause hazardous waste to be released from the primary barrier;

**RESPONSE**

Exide will maintain the primary barrier to be free of significant cracks, gaps, corrosion, or other deterioration that could cause the lead bearing materials within the containment building to be released from the primary barrier.

- b. maintain the level of the stored/treated hazardous waste within the containment walls of the unit so that the height of any containment wall is not exceeded;

**RESPONSE**

Exide will maintain the level of the stored/treated hazardous waste within the containment walls of the unit so that the height of any containment wall is not exceeded.

- c. take measures to prevent the tracking of hazardous waste out of the unit by personnel or by equipment used in handling the waste. An area must be designated to decontaminate equipment and any rinsate must be collected and properly managed; and

**RESPONSE**

Exide has measures in place to prevent the tracking of lead bearing materials out of the containment building by personnel or by equipment used in handling the waste. Exide operates two vehicle wash stations (Figure 1) at the main entrances to the containment building to ensure the containment of wastes and to prevent tracking of wastes. All vehicles exiting the building are required to use the vehicle washes to remove any accumulated waste prior to departure from the building. All rinsate generated from the vehicle washes is collected and conveyed to the facility's wastewater treatment plant for treatment prior to discharge.

- d. take measures to control fugitive dust emissions such that any openings (doors, windows, vents, cracks, etc.) exhibit no visible emissions (see 40 CFR Part 60 appendix A, Visual Determination of Fugitive Emissions from Material Sources and Smoke Emissions from Flares). In addition, all associated particulate collection devices (e.g., fabric filter, electrostatic precipitator) must be operated and maintained with sound air pollution control practices (see LAC 33:III.3544 for guidance). This state of no visible emissions must be maintained effectively at all times during normal operating and maintenance conditions, including when vehicles and personnel are entering and exiting the unit;

### **RESPONSE**

Exide has measures in place to control fugitive dust emissions such that any openings (doors, windows, vents, cracks, etc.) exhibit no visible emissions (according to 40 CFR Part 60 appendix A, Visual Determination of Fugitive Emissions from Material Sources and Smoke Emissions from Flares). In addition, all associated particulate collection devices (e.g., fabric filter, electrostatic precipitator) will be operated and maintained with sound air pollution control practices. Exide maintains a state of no visible emissions at all times during normal operating and maintenance conditions, including when vehicles and personnel are entering and exiting the containment building. Exide's containment building is operated with a ventilation system to permitted point sources. This ventilation system provides inward air flow (negative pressure) on the building. In addition, liquids are occasionally used on the lead bearing materials within the building for dust suppression purposes. These controls are used to ensure that no visible emissions are emitted from the containment building.

2. obtain certification by a qualified registered professional engineer that the containment building design meets the requirements of LAC 33:V.1802.A-C. For units placed into operation prior to February 18, 1993, this certification must be placed in the facility's operating record (on-site files for generators who are not formally required to have operating records) no later than 60 days after the date of initial operation of the unit. After February 18, 1993, PE certification will be required prior to operation of the unit;

### **RESPONSE**

Appendix B contains certification by a qualified professional engineer that the containment building design meets the requirements of LAC 33:V.1802 A-C. Copies of these certification documents are maintained on file with the facility's Part-B Permit at Exide Corporation's Baton Rouge Smelter.

3. promptly repair any condition which the owner or operator detects throughout the active life of the containment building that could lead to or has caused a release of hazardous waste in accordance with the following procedures:
  - a. upon detection of a condition that has lead to a release of hazardous waste (e.g., upon detection of leakage from the primary barrier) the owner or operator must:
    - i. enter a record of the discovery in the facility operating record;
    - ii. immediately remove the portion of the containment building affected by the condition from service;

- iii. determine what steps must be taken to repair the containment building, remove any leakage from the secondary collection system, and establish a schedule for accomplishing the cleanup and repairs; and
- iv. within seven days after the discovery of the condition, notify the administrative authority of the condition and, within 14 working days, provide a written notice to the administrative authority with a description of the steps taken to repair the containment building and the schedule for accomplishing the work;

**RESPONSE**

Exide acknowledges these requirements and will promptly repair any condition which is detected throughout the active life of the containment building that could lead to or caused a release of hazardous waste in accordance with the requirements specified above.

- b. the administrative authority will review the information submitted, make a determination regarding whether the containment building must be removed from service completely or partially until repairs and cleanup are complete, and notify the owner or operator of the determination and the underlying rationale in writing;

**RESPONSE**

Exide acknowledges the above citation.

- c. upon completing all repairs and cleanup, the owner or operator must notify the administrative authority in writing and provide a verification, signed by a qualified, registered professional engineer, that the repairs and cleanup have been completed according to the written plan submitted in accordance with LAC 33:V.1802.C.3.a.iv; and

**RESPONSE**

Upon completing all repairs and cleanup, Exide will notify the administrative authority in writing and provide a verification, signed by a qualified, registered professional engineer, that the repairs and cleanup have been completed according to the written plan submitted in accordance with LAC 33:V.1802.C.3.a.iv.

- 4. inspect and record in the facility's operating record, at least once every seven days, data gathered from monitoring equipment and leak detection equipment as well as the containment building and the area immediately surrounding the containment building to detect signs of releases of hazardous waste.

**RESPONSE**

Exide inspects and records in the facility's operating record, at least once every seven days, data gathered from monitoring equipment and leak detection equipment as well as the containment building and the area immediately surrounding the containment building to detect signs of releases of hazardous waste. A copy of the inspection record is included in Appendix D.

- D. For containment buildings that contain areas both with and without secondary containment, the owner or operator must:

1. design and operate each area in accordance with the requirements enumerated in LAC 33:V.1802.A-C;

**RESPONSE**

No storage areas at Exide have secondary containment. Therefore, Exide will operate the storage areas in accordance with the requirements of LAC 33:V.1802.A and C.

2. take measures to prevent the release of liquids or wet materials into areas without secondary containment; and

**RESPONSE**

No storage areas at Exide have secondary containment. Therefore, Exide will operate the storage areas in accordance with the requirements of LAC 33:V.1802.A and C. Exide will also use good material management practices to minimize the potential for wet materials and/or liquids entering the containment building storage areas.

3. keep in the facility's operating log a written description of the operating procedures used to maintain the integrity of areas without secondary containment.

**RESPONSE**

Since Exide does not store liquid wastes, there is no secondary containment associated with the storage area. Exide will maintain, in the facility's operating log, a written description of the operating procedures used to maintain the integrity of areas without secondary containment.

- E. Notwithstanding any other provision of this Chapter, the administrative authority may waive requirements for secondary containment for a permitted containment building where the owner or operator demonstrates that the only free liquids in the unit are limited amounts of dust suppression liquids required to meet occupational health and safety requirements and where containment of managed wastes and liquids can be ensured without a secondary containment system.

### **RESPONSE**

**Exide requests that the administrative authority waive requirements for secondary containment for the potential occurrence that liquids could be generated from dust suppression activities.**

**Periodically dust suppression liquids are used to suppress dust to a level that meets occupational health and safety requirements. Typically the stored waste will adsorb the liquids to a point that the waste will still pass the paint filter test. Should liquids become present, Exide will take measures to collect and remove the liquid using a collection sump within the area or absorbent materials.**

#### **§1803. Closure and Post-Closure Care**

- A. At closure of a containment building, the owner or operator must remove or decontaminate all waste residues, contaminated containment system components (liners, etc.), contaminated subsoils, and structures and equipment contaminated with waste and leachate and manage them as hazardous waste unless LAC 33:V.109.Hazardous Waste applies. The closure plan, closure activities, cost estimates for closure, and financial responsibility for containment buildings must meet all of the requirements specified in LAC 33:V.Chapters 35 and 37.**
- B. If, after removing or decontaminating all residues and making all reasonable efforts to effect removal or decontamination of contaminated components, subsoils, structures, and equipment as required in Subsection A of this Section, the owner or operator finds that not all contaminated subsoils can be practicably removed or decontaminated, he must either:**
  - 1. close the facility and perform post-closure care in accordance with the closure and post-closure requirements that apply to landfills (LAC 33:V.2521). In addition, for the purposes of closure, post-closure, and financial responsibility, such a containment building is then considered to be a landfill and the owner or operator must meet all of the requirements for landfills specified in LAC 33:V.Chapters 35 and 37; or**
  - 2. perform a risk assessment to demonstrate that closure with the remaining contaminant levels is protective of human health and the environment in accordance with LAC 33:I.Chapter 13. Any such risk assessment is subject to approval by the administrative authority and must demonstrate that post-closure care is not necessary to adequately protect human health and the environment.**

### **RESPONSE**

**Attached in Appendix C is a closure plan for the containment building.**

## FIGURES

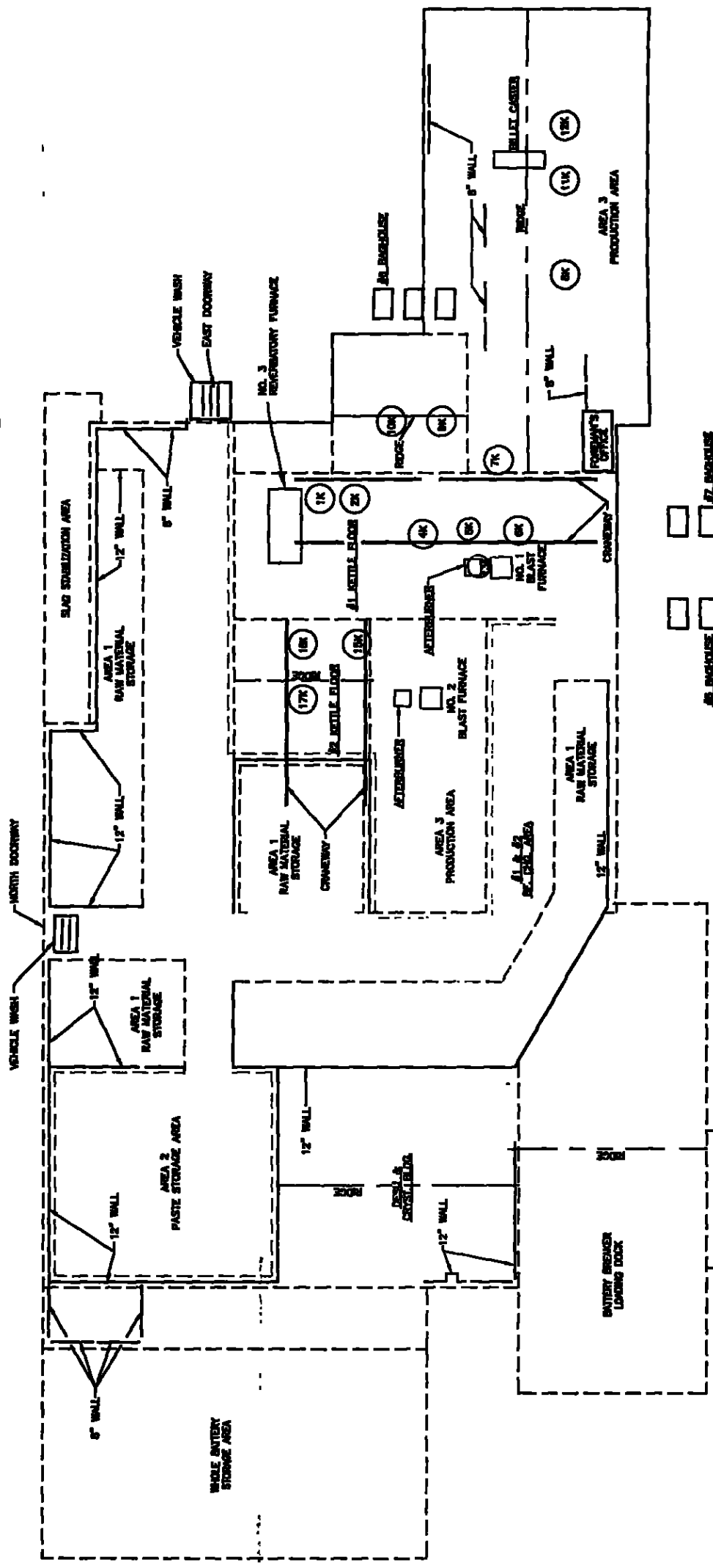
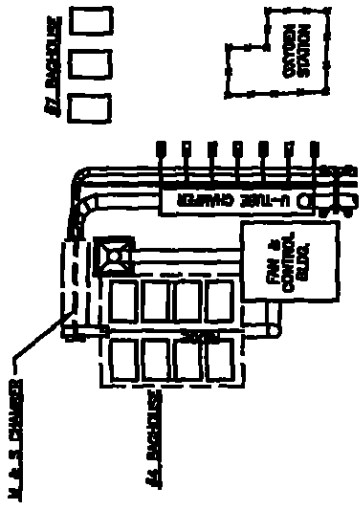


**FIGURE 1**



22. BARGEHOUSE

27. BARGEHOUSE



26. BARGEHOUSE

27. BARGEHOUSE



### LEGEND

- AREA 1 RAW MATERIAL STORAGE AREAS
- AREA 2 PASTE STORAGE AREA
- AREA 3 PRODUCTION AREA

### REFERENCE

BASE MAP PROVIDED BY EXIDE DRAWING NO. AREA MAP 4  
DATED 7/22/98.



|   |                |
|---|----------------|
| <b>Exide Corporation</b><br>Baton Rouge, Louisiana  |                |
| Hazardous Waste Containment Building Certification  |                |
| <b>Containment Building</b>                         |                |
| East Baton Rouge Parish                             |                |
| Drawn: LMH/ACAD                                     | Checked: TAB   |
| Approved: TAB                                       | Date: 11/03/98 |
| Dwg. No.: 824-810-01                                |                |
| <b>CK ASSOCIATES, INC</b><br>Baton Rouge, Louisiana |                |
| <b>Figure 1</b>                                     |                |

## APPENDICES

## **APPENDIX A**

### **WOODWARD-CLYDE CONSULTANTS CERTIFICATION DOCUMENTS**

# Woodward-Clyde Consultants

Engineering & sciences applied to the earth & its environment

April 7, 1992

Schuylkill Metals Corporation  
P. O. Box 74040  
Baton Rouge, Louisiana 70874

Attention: Mr. G. Hasse

Re: Battery Plate Storage  
SMC Baton Rouge Plant  
WCC File 91B585C

Dear Mr. Hasse:

We are pleased to submit our report outlining our quality assurance activities during the construction of the expansion to the Battery Storage Building.

Our activities involved periodic site visits made, at your or your representative's request, to observe different phases of the construction activities. These observed conditions are summarized on the daily field reports (attached to this report) and were compared to your project drawings (attached to this report) given to us at the start of the project.

Based on the observations made during our site visits and based on the information provided to us by you and/or your representatives, we attest that to the best of our knowledge and judgment, the expansion to the building has been constructed in substantial conformance with the plans developed for this project.

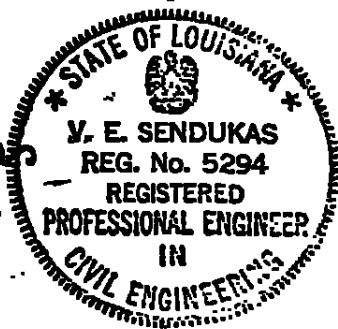
Very truly yours,



V. E. Sendukas, P. E.

VES:klu

58SCERT.LTR SCHUYLKL





Job Number:

91 B SBSC

Date: (see below)

Schuylkill Metals Corporation  
Certification of Sinter Bldg. Expansion

7/29/91

- Arrived at SME office and met w/ Messrs. Mann & Pipes.
- Received 2 drawings showing plan of "Battery Plate Storage" area and "Typical Section" of floor system and wall. No other specifications were made available.
- Advised Mr. Mann that we will have to observe each component individually in order to be able to certify construction as shown on the drawing.
- Visited the building site. The concrete floor has already been placed. Based on visual observation, the concrete floor appears of satisfactory quality; no depth measurements could be obtained at this time without coring the slab. Based on comparison with the existing adjacent slab it appears that the new slab is at least 4 inches thick (as indicated on drawing).

V.E. Henderson

8/7/91

- Visited the SME site at Mr. Mann's request of 8/6/91.
- The asphaltic concrete mixture has been installed; based on visual observations, it appears that the mixture is of adequate quality and that the layer has been compacted satisfactorily. Soundings made at 3 random locations indicated thicknesses of 2,  $1\frac{3}{8}$  and  $1\frac{3}{4}$  inches (average  $1.71''$ ) in comparison to  $1\frac{1}{2}$  inches indicated on the drawing.
- Samples were not taken since there were no specific specifications provided.

V.E. Henderson

Job Number: 918535CDate: 8-8-91

8-8-91

Visited the SMC site and met with Mr. F. Ray & Mr. G. McKill to check the backhoe dig area. The drawing indicated 90' dia. 2" pipe from the collar through the 12" retaining wall to the collection sump; however the pipe is perforated to the inner edge of the retaining wall as per Mr. Ray. It was also suggested that the filter fabric be wrapped around the 2" P.V.C. pipe and secured to prevent plugging of the 3/8" perforation in the pipe. Both of these items were discussed with Mr. Ray & Mr. Gendras before departing the site.

Mr. Ray said the fabric will be wrapped and secured before the pump is placed. This activity was started before departing the site.

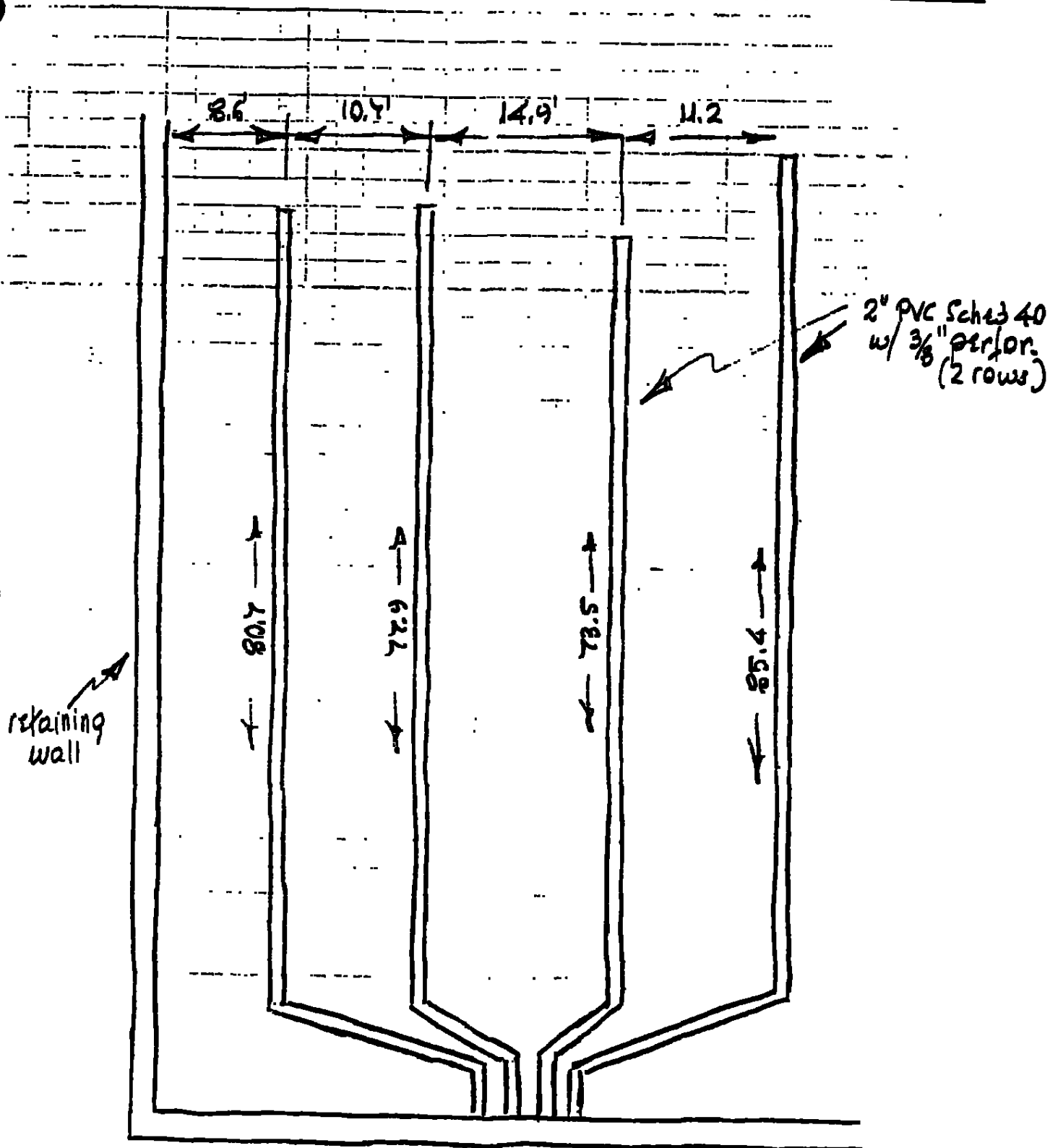
See the attached for measurement of location of the collection pipe.

C. B. Ray



FOR 91B585C

Made by: \_\_\_\_\_ Date: \_\_\_\_\_  
Checked by: \_\_\_\_\_ Date: \_\_\_\_\_







Job Number:

91B585C

Date:

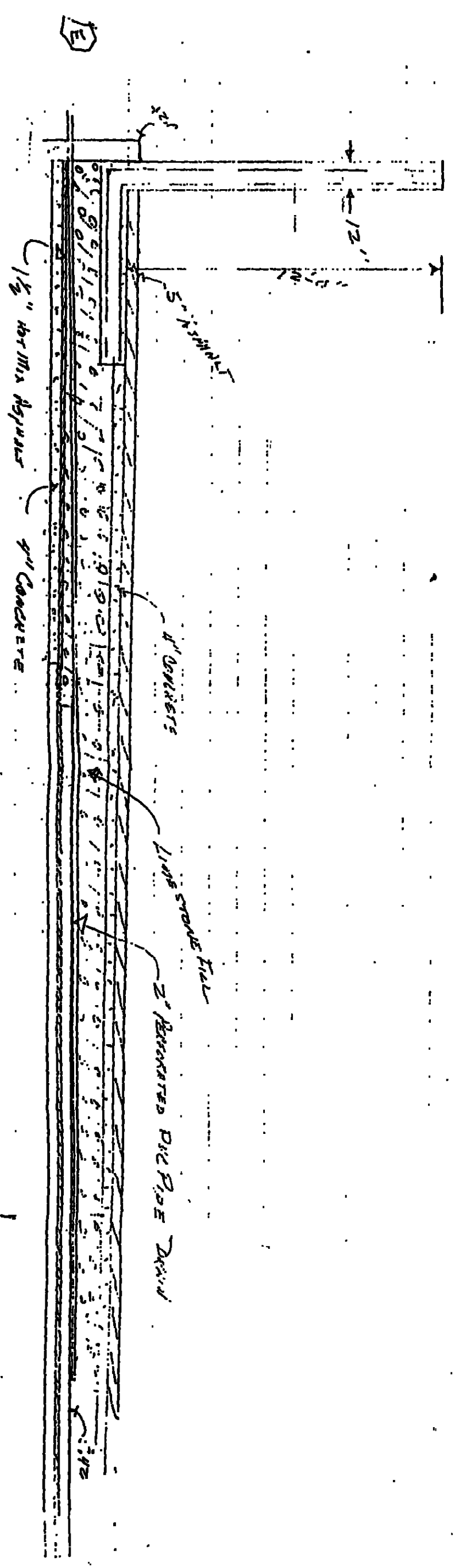
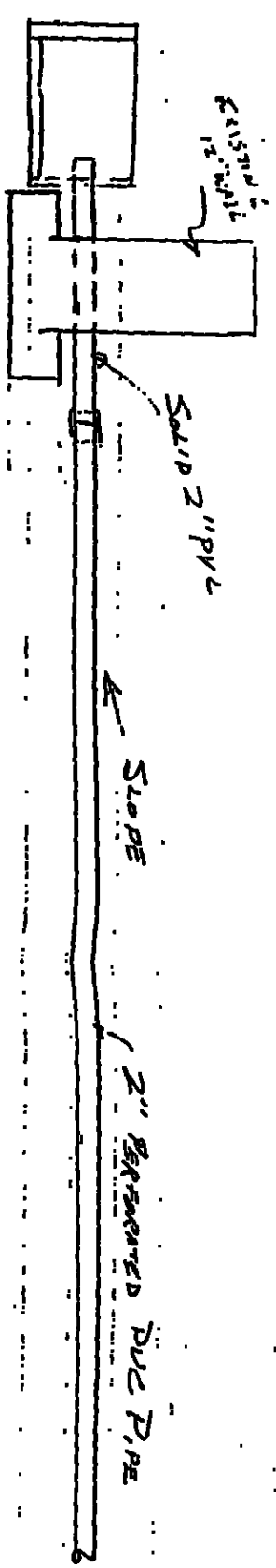
(see below)

11/6/91

- Arrived at SME office and met w/ Mr. J. Mann
  - Visited construction site; placement of Petrofac strips over joints & cracks is in progress & appears satisfactory (\*)
  - Joints & cracks (minor) have been sealed with Sennolastic 801 (as reported to us) and appear satisfactory.
  - Placement of completed limestone course & placement of concrete has not been observed in progress although quality of concrete appears satisfactory. Thickness of concrete varies from 4 in (observed at the edge) to something thicker (as reported by Mr. Mann)
  - (\*) Petrofac is an additional item constructed by SME for additional protection & is not required by the plans.
- V.E. Henderson

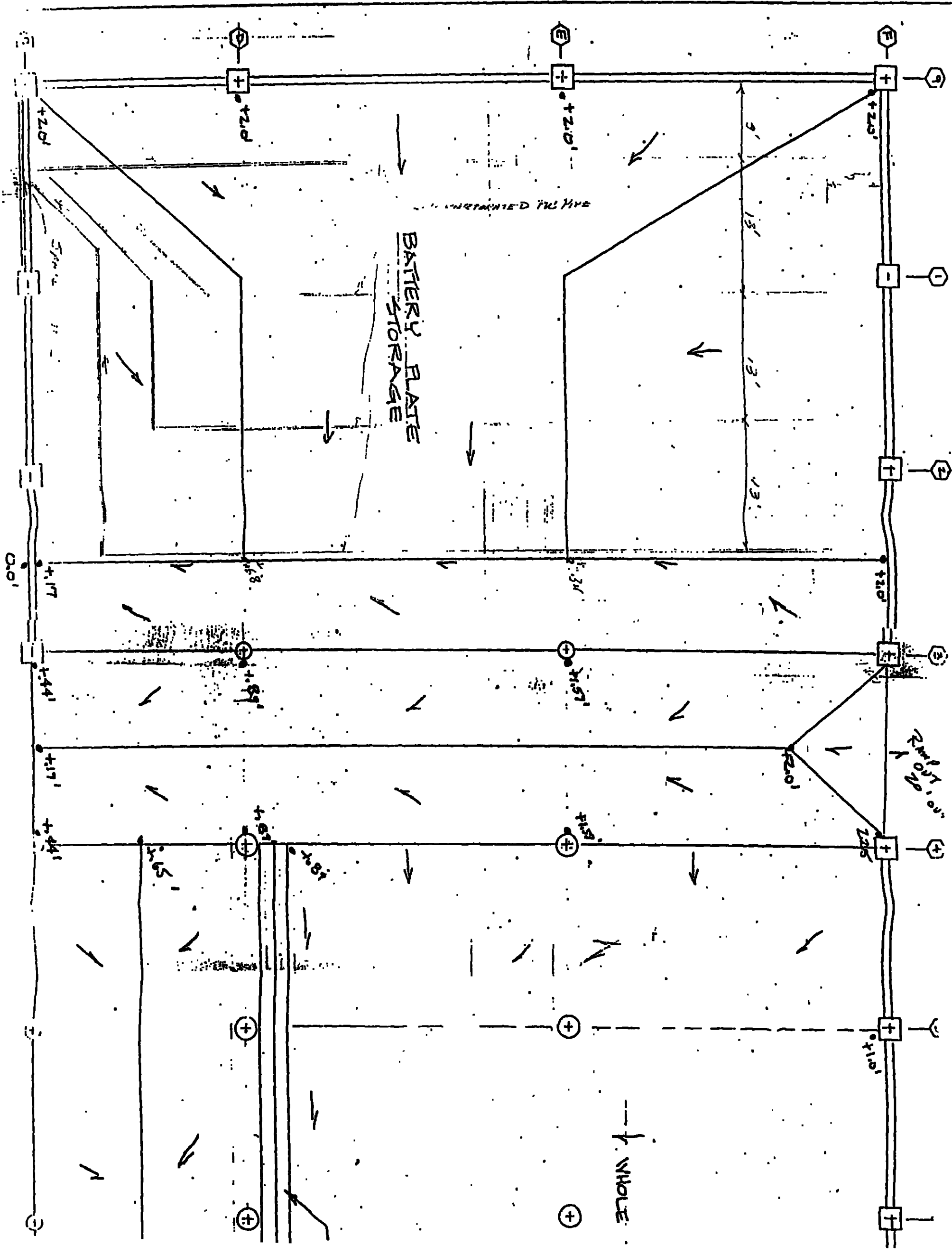
12/3/91

- Visited site to observe completed pad
  - Asphalt concrete has been placed & appears to be of acceptable quality based on visual observation. No samples were taken since no specifications were made available for comparison. No thickness measurements were made on the completed top course.
- V.E. Henderson



Barney George DeWitt  
 RUSA - No Old Stone etc.  
 Typewritten Section  
 5/11/91

440' 2" SA 11  
5 - 450' ME  
4 - 900' SE



**Woodward-Clyde**  
Engineering & science applied to the earth & its environment

92B324C

February 28, 1994

Schuylkill Metals Corporation  
P. O. Box 74040  
Baton Rouge, Louisiana 70874

Attention: Mr. Dalton R. Mann

Re: Quality Assurance Certification  
Under Roof Storage - Dross Bin

Dear Mr. Mann:

This letter report outlines our quality assurance activities in connection with the upgrade of the above-referenced work.

On July 17, 1992, a visit was made by our Mr. V.E. Sendukas to your facility to discuss the scope of work and inspect the site.

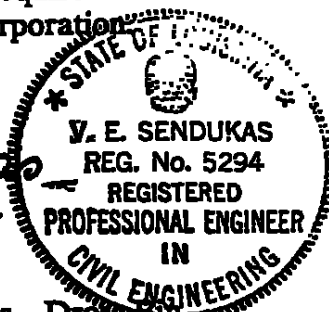
On July 29 and July 30, 1992, visits were made by our Mr. W.C. Meredith to observe the placement of the sand, the geomembrane, the protective geotextile, and the installation of the batten strips.

On August 6, 1992, a visit was made by our Mr. V.E. Sendukas to observe the completed concrete flooring and determine its thickness on the basis of measurements marked on the walls during the previous visits.

Based on the observations made and the measurements taken during these visits and based on the quality control test results provided to us by the geofabrics contractor, I certify to the best of my personal knowledge and belief that the upgrade of the dross bin area meets the requirements outlined in the plans and specifications provided by Schuylkill Metals Corporation.

Sincerely,

*V.E. Sendukas*  
V. E. Sendukas, P.E.

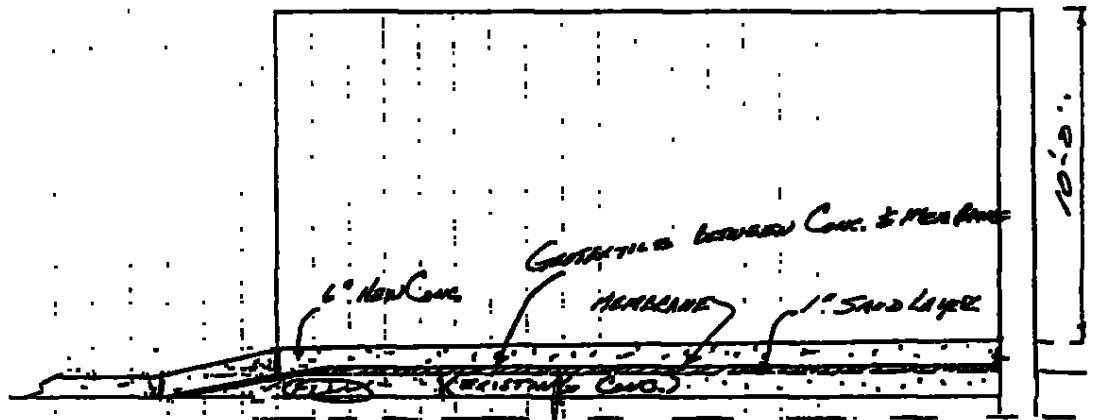
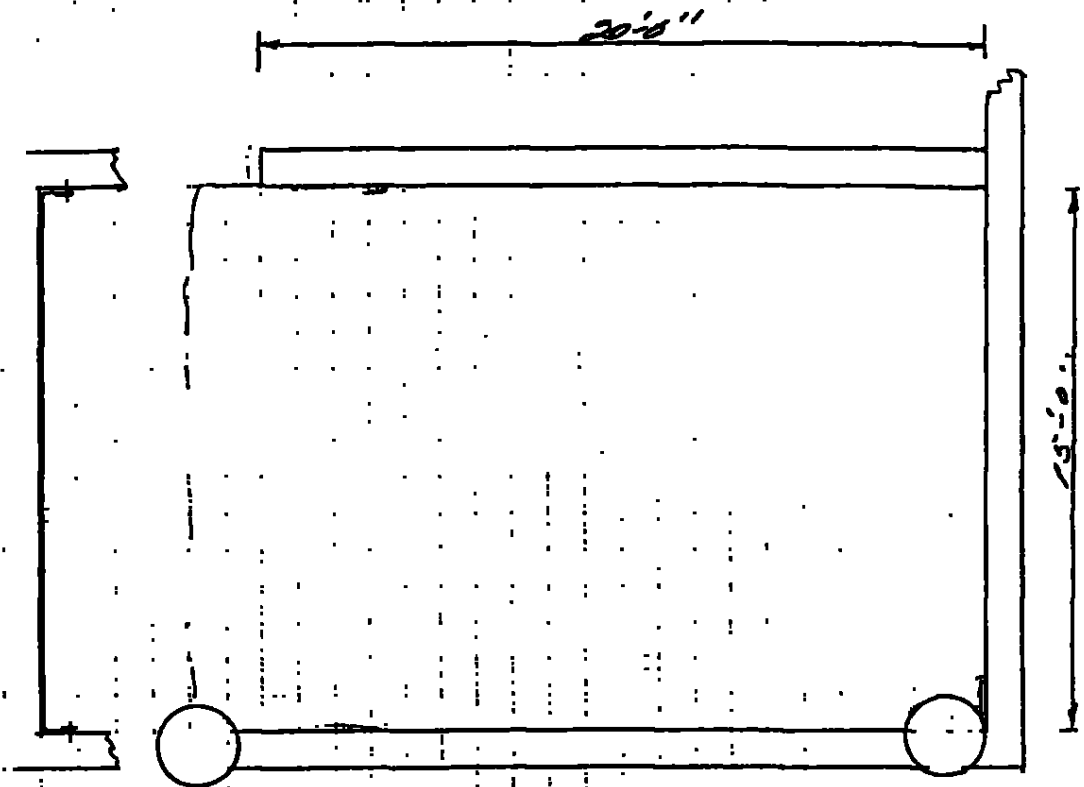


VES:kd1

Enclosures:

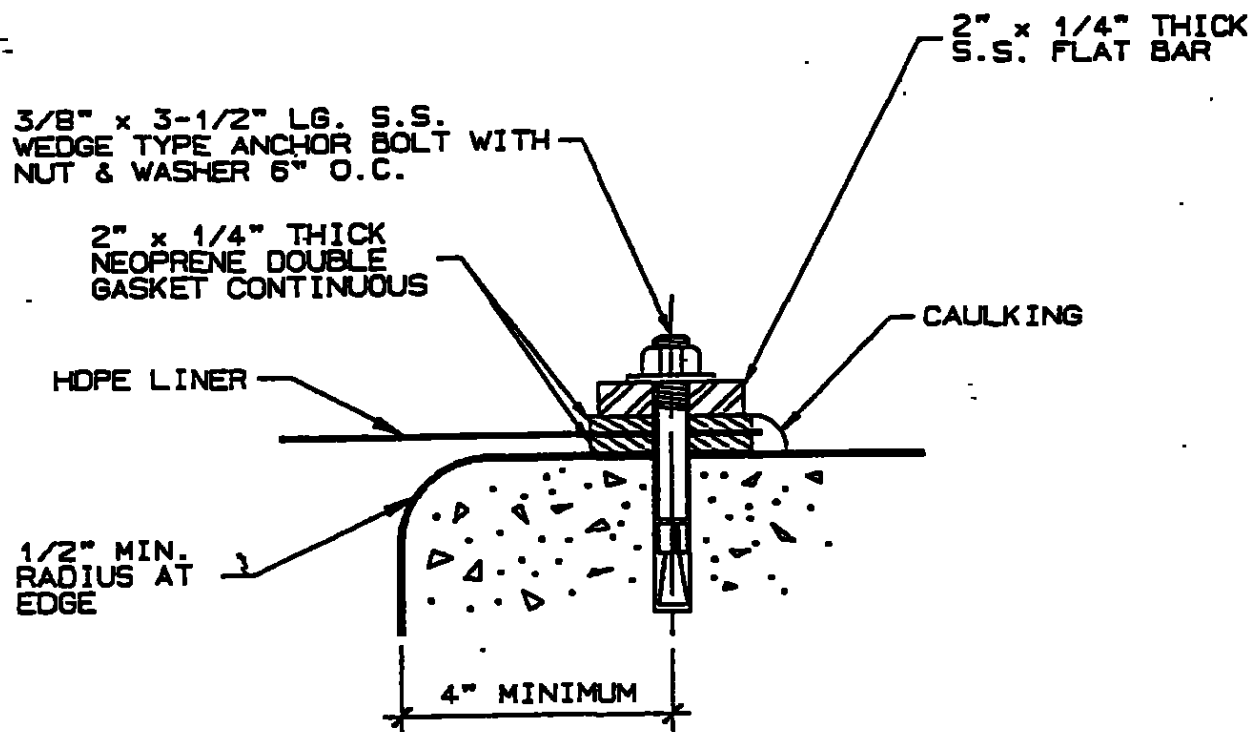
Plans - Dross Bin  
Typical Concrete Attachment  
NCS Acceptance for Work Completed  
CQC Lab - Field Seam Samples  
NSC Certification of Materials

QAC-URS.LTR SCHUYLKL



DRILL BIT  
WITH MEMBRANE UNDER CONCRETE

1/15/92



## TYPICAL CONCRETE ATTACHMENT

BATTEN TYPE

### NOTE:

1. CONCRETE SURFACES AT ATTACHMENT LOCATIONS TO BE STEEL TROWEL FINISHED OR GROUND SMOOTH PRIOR TO INSTALLATION.
2. AVOID VERTICAL WALL ATTACHMENT WHENEVER POSSIBLE.
3. WHEN USING GEOTEXTILE OR DRAINAGE NET, DO NOT TERMINATE BENEATH BATTEN BAR.

**NSC**

National Seal Company  
Southeast Region  
11638 SUN BELT COURT  
BATON ROUGE, LA 70808  
(504) 751-2700  
FAX (504) 751-2789

PROJECT: SCHUYLKIN METALS CORPORATION  
LOCATION: BATON ROUGE, LOUISIANA  
DATE: 7/30/92  
PROJECT #: 2106

**ACCEPTANCE FOR WORK AS COMPLETED****BILLING INFORMATION**

OWNER REP: Don Pipes  
OWNER: SCHUYLKIN METALS CORPORATION  
BILLING ADDRESS: P.O. Box 74040  
BATON ROUGE, LOUISIANA 70874

The undersigned, as owner or authorized agent for owner, states that he has inspected the below listed project and found it completed in accordance with Engineering Design.

DESCRIPTION OF LINED AREA: DRY STORAGE / CONTAINMENT AREA

|   |                             |
|---|-----------------------------|
| Material Type: <u>40 MIL HDPE</u>               | Total Sq. Ft: <u>418 SF</u> |
| Material Type: <u>Amoco 4516</u>                | Total Sq. Ft: <u>418 SF</u> |
| Material Type: <u>STAINLESS STEEL BATTENING</u> | Total Sq. Ft: <u>55 LF</u>  |
| Material Type: _____                            | Total Sq. Ft: _____         |
| Material Type: _____                            | Total Sq. Ft: _____         |

**COMMENTS:**Andrew Blackford

NSC REP  
(WHITE)

Don Pipes

OWNER/CONTRACTOR  
NEIL GALT

INSPECTOR

C.Q.C. LAB  
Date Tested:  
7/30/92

FIELD SEAM SAMPLES  
40 mil Polyethylene Geomembrane  
Job #2106

RT.41 South  
Galesburg, IL  
309-342-1936

Sample  
Number

Seam Peel  
Adhesion  
(ppi)

Film Tear  
Bond

Bonded Seam  
Strength  
(ppi)

Film Tear  
Bond

Outer/Inner

Outer/Inner

DS#P1

76

FTB

112

FTB

97

FTB

118

FTB

MX#04

99

FTB

114

FTB

105

FTB

114

FTB

Seam -

109

FTB

113

FTB

Avg:

97

114

SD:

13

2

JUL 15 1992

JUL 30 1992

NATIONAL SEAL COMPANY  
OATMAN BRIDGE 1A



# NSC

National Seal Company

Southeast Region  
11638 Sun Belt Court  
Baton Rouge, LA 70809  
(504) 751-2700  
(800) 562-5329  
(504) 751-2789 Fax

July 28, 1992

Mr. Don Pipes  
Schuykill Metals, Inc.  
P. O. Box 74040  
Baton Rouge, Louisiana 70874

Dear Mr. Pipes:

NSC is pleased to have been awarded the contract for supplying and installing geosynthetic at your Baton Rouge Facility.

I would like to take the time to clarify the last few details prior to our mobilization this week.

Item #1 - The installation of 40 mil HDPE, S.S. Batten and Geotextile will be performed in accordance with "NSC Field Quality Control Manual". This includes cutting and testing a minimum of one (1) destructive sample at a cost of \$150.00 each.

Item #2 - NSC will be providing an AMOCO 4516 Geotextile layer to serve as a protective layer for the 40 mil HDPE. The AMOCO 4516 material is a partial roll in inventory at our Baton Rouge office. The material visually appeared in good condition, however, there are no manufacturers certification available for the partial roll. NSC suggests that you confirm with your quality assurance consultant or design engineer that this uncertified material will meet the intent of your design.

NSC is looking forward to working with you on this project as well as others in the future. Please do not hesitate to call us if you have any questions.

Sincerely,

NATIONAL SEAL COMPANY

*Mark Dillon*

Mark Dillon  
Project Manager

MD/ss

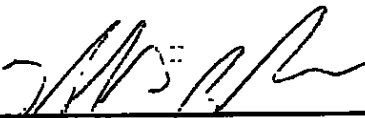
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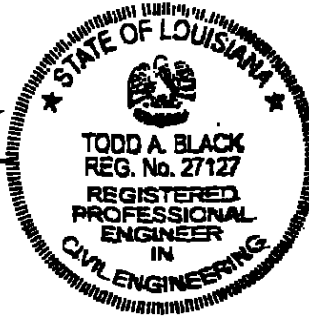
OK.  
WCH  
28

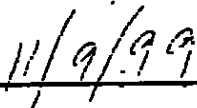
**APPENDIX B**

**C-K ASSOCIATES, INC.  
CERTIFICATION DOCUMENT**


"I certify under penalty of law that, based on the information provided me, that the Exide containment building design meets the requirements of LAC 33:V.1802.A-C."


  
\_\_\_\_\_  
Todd A. Black, P.E.  
Project Engineer  
C-K Associates, Inc.



  
\_\_\_\_\_  
Date

"I certify under penalty of law that I have personally examined and I am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

  
\_\_\_\_\_  
Steven Grau  
Plant Manager  
Exide Corporation

  
\_\_\_\_\_  
Date

**APPENDIX C**  
**EXIDE CLOSURE PLAN**

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## **1.0 INTRODUCTION**

This revised Facility Closure Plan has been developed for the Exide Corporation (Exide) Baton Rouge smelter in accordance with Chapter 35 of the Louisiana Department of Environmental Quality - Hazardous Waste Division (LDEQ-HWD) Environmental Regulatory Code. This closure plan includes a section describing the facility background and operations, the closure methodologies for each permitted hazardous waste unit, and a closure and post-closure cost estimate. The cost estimates were prepared in accordance with Chapter 37 of the LDEQ-HWD Environmental Regulatory Code.

This revised Closure Plan is being submitted to update the closure cost estimates and closure procedures. The revised closure cost estimates are listed on Table 1, and described in Section 4.0.

## **2.0 BACKGROUND**

The Exide Baton Rouge smelter is located at 2400 Brooklawn Drive, in East Baton Rouge Parish, Louisiana. This facility is a secondary lead smelter and refinery which recycles inorganic lead-bearing materials into lead pig and block ingots, which are sold to customers for use in making batteries, weights, bearings, ammunition, and chemicals. The facility has been in operation since the early 1960s.

Most of the raw materials used by the Baton Rouge smelter to produce lead are purchased off-site. The lead-bearing raw materials are delivered to the facility in trucks or trailers and are unloaded at the loading dock. Lead acid batteries are either fed directly into the battery breaker or are stored temporarily at the truck/trailer storage area. Other lead-bearing materials are received in drums. These drums will either be emptied into a feed-stock pile in the containment building or held temporarily in the K069/D008 storage area. Lead acid batteries are processed by cutting the batteries, separating them into individual components and storing the lead-rich paste in the containment building prior to smelting. The facility operates two blast furnaces and one reverbatory furnace that are used to smelt the lead-bearing raw materials. The molten lead is cast into ingots using two casting machines. The lead ingots are loaded into trucks and transported off-site for reuse. The only non-recycled waste produced at the Baton Rouge smelter is a blast furnace slag. This slag contains mostly iron, silica and calcium oxides. The slag is treated by mixing with Portland cement and sodium silicate and is placed into a permitted solid waste landfill.

On September 30, 1993 the facility was issued a Final Operating Permit (No.LAD008184137-OP-1) by the LDEQ-HWD. The Baton Rouge smelter has three permitted hazardous waste storage areas, two are existing (the truck/trailer storage area and the K069/D008 storage area), and one is planned (the whole battery storage area). The facility has one existing permitted treatment area, the slag stabilization area. Exide also has a containment building that is used to store raw materials prior to recycling. All of these units are shown on the site map presented on Figure 1.

Once decontamination is complete, five (5) confirmation samples will be collected and analyzed. The samples will be collected by drilling through the concrete and collecting soil samples for lead analysis. A certification report will be prepared and certified by an independent registered professional engineer, stating the facility was closed in accordance the approved closure plan.

### **3.3 The Containment Building**

The containment building stores lead-bearing raw materials that will be recycled in the blast or reverberatory furnaces. The building is divided into bins where particular feedstock or slag is stored. The containment building is constructed with a 5-inch thick modified asphalt and 4-inch thick concrete primary liner. The primary liner overlays a leak detection granular layer, which overlays a 1.5-inch thick asphalt and 4-inch thick concrete secondary liner. The boundaries of the building are sloped to collect any liquids that may be present. The building is completely enclosed and ventilated. It is planned that the containment building will continue to operate for the lifetime of the Baton Rouge smelter. Partial closure of the containment building is not anticipated.

The maximum inventory of slag in the containment building was calculated to be 3,333 tons, as detailed in Table 1B. The residual slag will be loaded into lined end dump trailers. An off-site contractor using rented or contractor supplied front-end loaders will complete the loading. The trailers will transport the slag off-site to a permitted hazardous waste disposal site.

The maximum inventory of battery components and other lead-bearing materials has been calculated to be 10,000 tons, as shown on Table 1B. This material will be loaded into vehicles and transported to another lead smelter for recycling.

Once all of the residual slag and the lead-bearing raw materials have been removed, a sweeper truck will be used to clean any residual material. After sweeping, the walls and floor of the containment building will be decontaminated using steam cleaners. The front-end loaders used to load the inventory and the sweeper truck will also be decontaminated. The wash water will be collected in third-party supplied trailers and transported for off-site disposal. Samples of the wash water will be collected and analyzed for lead to determine if the decontamination process is complete. It is estimated that 317,216 gallons of wash water will be generated, contained, transported and disposed. Personal protective equipment for the decontamination crew will include, respirators with particle cartridges, tyvek suits, gloves and hardhats with splashguards.

Once decontamination is complete, seventy (70) confirmation samples will be collected and analyzed. The samples will be collected by drilling through the concrete and collecting soil samples for lead analysis. A certification report will be prepared and certified by an independent registered professional engineer. The report will certify that the containment building was closed in accordance the approved closure plan.

### **3.4 K069/D008 Storage Area**

The K069/D008 storage area is located in the western portion of the containment building. This area is used to hold drums containing lead-bearing materials purchased from outside sources, until the material is recycled. The drums are inspected to insure that free liquid is not present. The floor of this storage area is constructed of concrete with no cracks or gaps. The floors are slope to drain into a sump. The drums are stacked on pallets, two pallets high, four drums to a

pallet. The K069/D008 storage area is an integral part of the facility operation. Closure of this unit is not anticipated. However, this unit may be relocated at a later date.

The maximum inventory of material in the K069/D008 storage area is 544 drums or 29,920 gallons. The inventory will be loaded into vehicles using a fork lift and transported to another lead smelter for recycling.

The area will be decontaminated using steam cleaners. The wash water will be collected in third-party supplied trailers and transported for off-site disposal. Samples of the wash water will be collected and analyzed for lead to determine if the decontamination process is complete. It is estimated that 5,750 gallons of wash water will be generated, contained, transported and disposed. Personal protective equipment for the decontamination crew will include, respirators with particle cartridges, tyvek suits, gloves and hardhats with splashguards.

Once decontamination is complete, 2 confirmation samples will be collected and analyzed. The samples will be collected by drilling through the concrete and collecting soil samples for lead analysis. A certification report will be prepared and certified by an independent registered professional engineer, stating the K069/D008 storage area was closed in accordance the approved closure plan.

### **3.5 Truck/Trailer Storage Area**

Batteries that are received by Exide are either unloaded at the loading dock or are stored in the truck/trailer storage area. Batteries at the truck/trailer storage area are stored on pallets prior to being processed in the battery breaking area. It is planned that the Truck/Trailer storage area will continue to operate for the lifetime of the Baton Rouge smelter. Partial closure of this area is not anticipated.

The maximum inventory of batteries stored in this area is 85,000 batteries, or 85,000 gallons. The inventory is already loaded on trailer, however, time has been allotted for restacking and ordering the loaded batteries. The batteries will be transported to another lead smelter for recycling.

The area will be decontaminated using steam cleaners. The wash water will be collected in third-party supplied trailers and transported for off-site disposal. Samples of the wash water will be collected and analyzed for lead to determine if the decontamination process is complete. It is estimated that 17,280 gallons of wash water will be generated, contained, transported and disposed. Personal protective equipment for the decontamination crew will include, respirators with particle cartridges, tyvek suits, gloves and hardhats with splashguards.

Once decontamination is complete, fifteen (15) confirmation samples will be collected and analyzed. The samples will be collected by drilling through the concrete and collecting soil samples for lead analysis. A certification report will be prepared and certified by an independent registered professional engineer. The closure report will state the truck/trailer storage area was closed in accordance the approved closure plan.



### **3.6 The Whole Battery Storage Area**

The proposed whole battery storage area will be used to store batteries prior to processing them. The batteries will be stored on pallets. This area has not yet been constructed. No closure date for this unit has been designated, and partial closure is not expected.

The maximum inventory of spent batteries will be 81,000 batteries or 81,000 gallons. The inventory will be loaded into vehicles using a fork lift and transported to another lead smelter for recycling.

The area will be decontaminated using steam cleaners. The wash water will be collected in third-party supplied trailers and transported for off-site disposal. Samples of the wash water will be collected and analyzed for lead to determine if the decontamination process is complete. It is estimated that 9,500 gallons of wash water will be generated, contained, transported and disposed. Personal protective equipment for the decontamination crew will include, respirators with particle cartridges, tyvek suits, gloves and hardhats with splashguards.

Once decontamination is complete, eight (8) confirmation samples will be collected and analyzed. The samples will be collected by drilling through the concrete and collecting soil samples for lead analysis. A certification report will be prepared and certified by an independent registered professional engineer, stating the whole battery storage area was closed in accordance the approved closure plan.

### **4.0 CLOSURE COST ESTIMATES**

It is estimated that the cost of closing the permitted and interim status hazardous waste units at the facility, as described in this closure plan, is approximately \$1,256,993.10. A detailed cost estimate is provided in Table 1. The detailed cost estimate was calculated in accordance with the requirements of LAC 33:V.3705. The cost estimate is based on the following assumptions:

- The cost is estimated in current dollars, as of November 1998.
- Closure costs are based on hiring third party contractors and consultants to close the units.
- Closure costs do not include any salvage value from the sale of hazardous waste, structures, land or other assets.

A breakdown of the closure costs for each unit is included. Table 1A presents the detailed cost estimate for the slag stabilization area. Table 1B presents the detailed cost estimate for the containment building. The detailed cost estimate for the K069/D008 storage area is presented on Table 1C. Table 1D lists the detailed cost estimate for the truck/trailer area and Table 1E has the whole battery storage area cost breakdown. Each of these tables lists the following information:

- the calculations to determine the maximum inventory,
- The unit cost of loading, transporting and disposing of the maximum inventory,

- the dimensions of the unit to be decontaminated,
- the number of people needed to complete decontamination of the unit,
- the calculation for the amount of wash water generated during decontamination,
- the number of water and soil confirmation samples to be collected at the closed unit,
- the type and amount of equipment that needs to be rented for closure activities,
- and the cost of preparing a closure certification report for each unit.

The closure cost estimate has been used by Exide to update Financial Assurance for the Baton Rouge smelter.

## **5.0 POST-CLOSURE CARE**

The Baton Rouge smelter has two units in post-closure care, Closed Waste Pile No.1 and Closed Waste Pile No. 2. Figure 1 shows the locations of these units. The units are slag disposal areas that were closed in-place in 1985 and 1986. The post-closure period is 18 years, since the units have been closed for a period of 12 years at this time.

Post-closure care of these units involves maintenance of the cap and groundwater monitoring. Cap maintenance includes top-soil maintenance, fertilizing, reseeding, and grass cutting and upkeep. Cap integrity inspections will be performed and an annual certification by an engineer will be completed, documenting the integrity of the caps. Groundwater monitoring activities include purging and sampling 7 monitor wells twice per year, collection and analysis of groundwater samples and preparation of an annual report. One well MW-1R is located up gradient of the closed units, and six wells, MW-4R, MW-12R, MW-13R, MW-16, MW-17 and MW-18 are located down gradient of the closed units. The groundwater samples from each well will be analyzed for chloride, sulfate, total lead, total cadmium, total organic carbon (TOC) and total organic halogen (TOX). The annual report will contain the analytical data, potentiometric maps and a summary of the groundwater quality for the closed units.

Table 2 presents the post-closure care cost estimates. These estimates were prepared in accordance with LAC 33:V.3709, using current dollar values as of November 1998. The estimates are based on hiring third-party contractors or consultants to perform the post-closure activities.

## TABLES

**TABLE 1**  
**SUMMARY OF CLOSURE COSTS**

| Description                                      | Units  | Unit Cost  | Total Cost         |
|--|--------|------------|--------------------|
| <b>A. Slag Stabilization Area</b>                |        |            |                    |
| 1 Loading of Residual Slag (144.4 tons)          | 144.4  | \$2.00     | \$288.80           |
| 2 Transportation of Residual Slag (144.4 tons)   | 144.4  | \$27.50    | \$3,971.00         |
| 3 Disposal of Residual Slag (144.4 tons)         | 144.4  | \$150.00   | \$21,660.00        |
| 4 Facility Decontamination (10 hours)            | 10     | \$127.00   | \$1,270.00         |
| Slag Vessel Decontamination                      | 1      | \$500.00   | \$500.00           |
| 5 Water Characterization                         | 5      | \$50.00    | \$250.00           |
| 6 Transportation of Wash Water (5 loads)         | 5      | \$326.00   | \$1,630.00         |
| 7 Disposal of Wash Water (23,500 gallons)        | 23,500 | \$0.15     | \$3,525.00         |
| 8 Personal Protective Equipment                  | 6      | \$45.00    | \$270.00           |
| 9 Confirmation Sampling                          | 5      | \$500.00   | \$2,500.00         |
| 10 Laboratory Analysis (including QA/QC samples) |        |            |                    |
| a. Wash Water                                    | 6      | \$18.00    | \$108.00           |
| b. Concrete Core Samples                         | 6      | \$20.00    | \$120.00           |
| 11 Equipment Lease                               |        |            |                    |
| a. Front End Loader                              | 1      | \$125.00   | \$125.00           |
| b. Steam Cleaners                                | 5      | \$45.00    | \$225.00           |
| 12 Certification                                 | 1      | \$5,000.00 | \$5,000.00         |
| <b>Subtotal - A</b>                              |        |            | <b>\$41,442.80</b> |

**TABLE 1**  
**SUMMARY OF CLOSURE COSTS**

| Description                                     | Units   | Unit Cost  | Total Cost          |
|---|---------|------------|---------------------|
| <b>B. Containment Building</b>                  |         |            |                     |
| 1 Inventory Disposal - Residual Slag            |         |            |                     |
| a. Loading Inventory (3,333 tons)               | 3,333   | \$2.00     | \$6,666.00          |
| b. Transportation of Inventory (3,333 tons)     | 3,333   | \$27.50    | \$91,657.50         |
| c. Disposal of Inventory (3,333 tons)           | 3,333   | \$150.00   | \$499,950.00        |
| Inventory Removal - Lead Material for Reuse     |         |            |                     |
| d. Loading Inventory (10,000 tons)              | 10,000  | \$2.00     | \$20,000.00         |
| e. Transportation of Inventory (10,000 tons)    | 10,000  | \$18.00    | \$180,000.00        |
| 2 Facility Decontamination                      |         |            |                     |
| a. Sweeping (10 hours)                          | 10      | \$18.00    | \$180.00            |
| b. Decontamination (115 hours)                  | 115     | \$397.00   | \$45,655.00         |
| 3 Water Characterization                        | 64      | \$50.00    | \$3,200.00          |
| 4 Transportation of Wash Water (64 loads)       | 64      | \$326.00   | \$20,864.00         |
| 5 Disposal of Wash Water (317,216 gallons)      | 317,216 | \$0.15     | \$47,582.40         |
| 6 Confirmation Sampling                         | 70      | \$500.00   | \$35,000.00         |
| 7 Personal Protective Equipment                 | 273     | \$45.00    | \$12,285.00         |
| 8 Laboratory Analysis (including QA/QC samples) |         |            |                     |
| a. Wash Water                                   | 67      | \$18.00    | \$1,206.00          |
| b. Concrete Core Samples                        | 74      | \$20.00    | \$1,480.00          |
| 9 Equipment Lease                               |         |            |                     |
| a. Front End Loaders                            | 2       | \$125.00   | \$250.00            |
| b. Steam Cleaners                               | 20      | \$360.00   | \$7,200.00          |
| c. Sweeper                                      | 1       | \$1,300.00 | \$1,300.00          |
| 10 Certification                                | 1       | \$9,000.00 | \$9,000.00          |
| <b>Subtotal B</b>                               |         |            | <b>\$983,475.90</b> |

**TABLE 1**  
**SUMMARY OF CLOSURE COSTS**

| Description                                     | Units | Unit Cost  | Total Cost         |
|---|-------|------------|--------------------|
| <b>C. K069/D008 Storage Area</b>                |       |            |                    |
| 1 Inventory Disposal                            |       |            |                    |
| a. Loading Inventory (544 55-gallon Drums)      | 544   | \$0.45     | \$244.80           |
| b. Transportation of Inventory (544 Drums)      | 544   | \$15.00    | \$8,160.00         |
| 2 Facility Decontamination (4 hours)            | 4.0   | \$73.00    | \$292.00           |
| 3 Water Characterization                        | 2     | \$50.00    | \$100.00           |
| 4 Transportation of Wash Water (2 load)         | 2     | \$326.00   | \$652.00           |
| 5 Disposal of Wash Water (5,750 gallons)        | 5,750 | \$0.15     | \$862.50           |
| 6 Confirmation Sampling                         | 2     | \$500.00   | \$1,000.00         |
| 7 Personal Protective Equipment                 | 3     | \$45.00    | \$135.00           |
| 8 Laboratory Analysis (including QA/QC samples) |       |            |                    |
| a. Wash Water                                   | 3     | \$18.00    | \$54.00            |
| b. Concrete Core Samples                        | 3     | \$20.00    | \$60.00            |
| 9 Equipment Lease                               |       |            |                    |
| a. Fork Lift                                    | 1     | \$75.00    | \$75.00            |
| b. Steam Cleaners                               | 2     | \$45.00    | \$90.00            |
| 10 Certification                                | 1     | \$4,000.00 | \$4,000.00         |
| <b>Subtotal C</b>                               |       |            | <b>\$15,725.30</b> |

**TABLE 1**  
**SUMMARY OF CLOSURE COSTS**

| Description                                       | Units  | Unit Cost  | Total Cost         |
|---|--------|------------|--------------------|
| <b>D. Truck/Trailer Storage Area</b>              |        |            |                    |
| 1 Inventory Disposal                              |        |            |                    |
| a. Loading Inventory (85,000 batteries)           | 85,000 | \$0.01     | \$850.00           |
| a. Transportation of Inventory (85,000 batteries) | 85,000 | \$0.42     | \$35,700.00        |
| 2 Facility Decontamination (6 hours)              | 6      | \$109.00   | \$654.00           |
| 3 Water Characterization                          | 6      | \$50.00    | \$300.00           |
| 4 Transportation of Wash Water (4 loads)          | 4      | \$326.00   | \$1,304.00         |
| 5 Disposal of Wash Water (17,280 gallons)         | 17,280 | \$0.15     | \$2,592.00         |
| 6 Confirmation Sampling                           | 15     | \$500.00   | \$7,500.00         |
| 7 Personal Protective Equipment                   | 5      | \$45.00    | \$225.00           |
| 8 Laboratory Analysis (including QA/QC samples)   |        |            |                    |
| a. Wash Water                                     | 7      | \$18.00    | \$126.00           |
| b. Concrete Core Samples                          | 16     | \$20.00    | \$320.00           |
| 9 Equipment Lease                                 |        |            |                    |
| b. Steam Cleaners                                 | 4      | \$45.00    | \$180.00           |
| 10 Certification                                  | 1      | \$3,500.00 | \$3,500.00         |
| <b>Subtotal D</b>                                 |        |            | <b>\$53,251.00</b> |

**TABLE 1**  
**SUMMARY OF CLOSURE COSTS**

| Description                                       | Units  | Unit Cost  | Total Cost            |
|---|--------|------------|-----------------------|
| <b>E. Whole Battery Storage Area</b>              |        |            |                       |
| 1 Inventory Disposal                              |        |            |                       |
| a. Loading Inventory (81,000 batteries)           | 81,000 | \$0.05     | \$4,050.00            |
| b. Transportation of Inventory (81,000 batteries) | 81,000 | \$0.42     | \$34,020.00           |
| 2 Facility Decontamination (5 hours)              | 5      | \$91.00    | \$455.00              |
| 3 Water Characterization                          | 2      | \$50.00    | \$100.00              |
| 4 Transportation of Wash Water (2 loads)          | 2      | \$326.00   | \$652.00              |
| 5 Disposal of Wash Water (9,500 gallons)          | 9,500  | \$0.15     | \$1,425.00            |
| 6 Confirmation Sampling                           | 8      | \$500.00   | \$4,000.00            |
| 7 Personal Protective Equipment                   | 4      | \$45.00    | \$180.00              |
| 8 Laboratory Analysis (including QA/QC samples)   |        |            |                       |
| a. Wash Water                                     | 3      | \$18.00    | \$54.00               |
| b. Concrete Core Samples                          | 9      | \$20.00    | \$180.00              |
| 9 Equipment Lease                                 |        |            |                       |
| a. Fork Lift                                      | 1      | \$75.00    | \$75.00               |
| b. Steam Cleaner                                  | 3      | \$45.00    | \$135.00              |
| 10 Certification                                  | 1      | \$3,500.00 | \$3,500.00            |
| <b>Subtotal E</b>                                 |        |            | <b>\$48,826.00</b>    |
| <b>CLOSURE COSTS</b>                              |        |            | <b>\$1,142,721.00</b> |
| <b>10% CONTINGENCY</b>                            |        |            | <b>\$114,272.10</b>   |
| <b>TOTAL CLOSURE COSTS</b>                        |        |            | <b>\$1,256,993.10</b> |



**TABLE 1A**

**SUPPLEMENTAL CLOSURE COST INFORMATION  
SLAG STABILIZATION AREA**

**A. INVENTORY DISPOSAL**

1. Maximum quantity of residual slag to be removed and disposed off-site.

$$\begin{aligned} 20'w \times 15'l \times 10'h &= 3,000 \text{ ft}^3 \\ 1,800\text{ft}^3 / 27\text{ft}^3/\text{yd}^3 &= 111.1 \text{ yd}^3 \\ 66.7\text{yd}^3 \times 1.2 \text{ tons}/\text{yd}^3 &= 144.4 \text{ tons} \end{aligned}$$

2. Unit cost to dispose of residual slag.

$$\begin{aligned} \text{Loading: } \$2.00/\text{ton} \times 144.4 \text{ tons} &= \$288.80 \\ \text{Transportation: } \$27.50/\text{ton} \times 144.4 \text{ tons} &= \$3,971.00 \\ \text{Disposal: } \$150.00/\text{ton} \times 144.4 \text{ tons} &= \$21,660.00 \end{aligned}$$

$$\text{Total cost for inventory disposal} = \$25,919.80$$

**B. DECONTAMINATION OF SLAG STABILIZATION AREA**

1. Total surface area to be decontaminated.

$$174'l \times 27'w = 4,700\text{ft}^2 \text{ of surface area to be decontaminated.}$$

2. Unit cost of decontamination.

$$\begin{aligned} \text{Crew} &= 1 \text{ supervisor } (\$37.00/\text{hour}) \text{ and } 5 \text{ laborers } (\$18.00/\text{hour each}) \\ 100 \text{ ft}^2/\text{hour} \times 5 \text{ laborers} &= 500 \text{ ft}^2/\text{hour} \\ 4,700\text{ft}^2 / 500 \text{ ft}^2/\text{hour} &= 9.5 \text{ hours} \\ \text{Plus } 0.5 \text{ hours for equipment decontamination} & \\ 10 \text{ hours} \times \$127.00 &= \$1,270.00 \end{aligned}$$

3. Decontamination of the slag crusher feed vessel.

$$1 \text{ feed vessel} \times \$500.00 \text{ decontamination cost} = \$500.00$$

$$\text{Total cost for decontamination} = \$1,770.00$$

**C. DISPOSAL OF WASH WATER**

1. Volume of water generated during decontamination.

$$\begin{aligned} \text{High pressure wash} &= 4.0 \text{ gallons per ft}^2 \\ 4,700 \text{ ft}^2 \times 4.0 \text{ gallons per ft}^2 &= 18,800 \text{ gallons} \\ \text{Vessel decontamination} &= 4,200 \text{ gallons} \\ \text{Equipment decontamination} &= 500 \text{ gallons} \\ \text{Total amount of waste water} &= 23,500 \text{ gallons} \end{aligned}$$

2. Water characterization.

1 sample every 5,000 gallons

Sampling crew charge = \$50.00 / water sample

23,500 gallons / 5,000 gallons/sample = 5 water samples

5 water samples x \$50.00/sample = \$250.00

3. Transportation of wash water.

23,500 gallons / 5,000gallons/ load = 5 loads

5 loads x \$326.00/load = \$1,630.00

4. Disposal of wash water.

23,500 gallons x \$0.15/gallon = \$3,525.00

**Total cost for disposal of wash water = \$5,405.00**

D. PERSONAL PROTECTIVE EQUIPMENT

1. \$45.00 per man x 6 man crew = \$270.00

E. CONFIRMATION SAMPLING

1. Concrete core samples: 1sample every 1,000ft<sup>2</sup>

4,700 ft<sup>2</sup> / 1,000 ft<sup>2</sup>/sample = 5 samples

Sampling crew charge = \$500.00 / concrete core sample

5 concrete core samples x /sample = \$2,500.00

2. Laboratory analysis (lead).

5 water samples x \$18.00/sample = \$90.00

5 concrete core samples x \$20.00/sample = \$100.00

QA/QC samples (1 water and 1 soil) = \$38.00

**Total cost for confirmation sampling = \$2,728.00**

F. EQUIPMENT LEASE

1. 1 Front end loader = \$125.00

2. 5 Steam cleaners: 5 x \$45.00 = \$225.00

**Total cost for equipment lease = \$350.00**

G. CLOSURE CERTIFICATION

**Lump Sum = \$5,000.00**

**SLAG STABILIZATION AREA TOTAL CLOSURE COSTS = \$41,442.80**

**TABLE 1B**

**SUPPLEMENTAL CLOSURE COST INFORMATION  
CONTAINMENT BUILDING**

**A. INVENTORY DISPOSAL**

**1. Maximum quantity of residual slag to be removed and disposed off-site.**

- a) Slag storage Area 1:  
 $100' l \times 25' w \times 10' h = 26,400 \text{ ft}^3$   
 $26,400 \text{ ft}^3 / 27 \text{ ft}^3/\text{yd}^3 = 977.78 \text{ yd}^3$   
 $977.78 \text{ yd}^3 \times 1.2 \text{ tons}/\text{yd}^3 = 1,333 \text{ tons}$
- b) Slag storage Area 2:  
 $77' l \times 45' w \times 12' h = 41,580 \text{ ft}^3$   
 $29,200 \text{ ft}^3 / 27 \text{ ft}^3/\text{yd}^3 = 1,081.48 \text{ yd}^3$   
 $1,081.48 \text{ yd}^3 \times 1.3 \text{ tons}/\text{yd}^3 = 2,000 \text{ tons}$

**Total residual slag to be removed and disposed = 3,333 tons.**

**2. Unit cost to dispose of residual slag.**

Loading:  $\$2.00/\text{ton} \times 3,333 \text{ tons} = \$6,666.00$   
Transportation:  $\$27.50/\text{ton} \times 3,333 \text{ tons} = \$91,657.50$   
Disposal:  $\$150.00/\text{ton} \times 3,333 \text{ tons} = \$499,950.00$

**Total disposal cost of residual slag = \$598,273.50**

**3. Maximum quantity of inventory to be removed for reuse.**

- a. Wet plate storage Area 3:  
 $100' l \times 50' w \times 12' h = 60,000 \text{ ft}^3$   
 $60,000 \text{ ft}^3 / 27 \text{ ft}^3/\text{yd}^3 = 2,222.22 \text{ yd}^3$   
 $2,222.22 \text{ yd}^3 \times 1.8 \text{ tons}/\text{yd}^3 = 4,000 \text{ tons}$
- b. Dry paste storage -  
Area 4:  $50' l \times 50' w \times 12' h = 30,000 \text{ ft}^3$   
 $30,000 \text{ ft}^3 / 27 \text{ yd}^3 = 1,111.11 \text{ yd}^3$   
 $1,111.11 \text{ yd}^3 \times 1.7 \text{ tons}/\text{yd}^3 = 2,000.00 \text{ tons}$
- Area 5:  $100' l \times 25' w \times 12' h = 30,000 \text{ ft}^3$   
 $30,000 \text{ ft}^3 / 27 \text{ yd}^3 = 1,111.11 \text{ yd}^3$   
 $1,111.11 \text{ yd}^3 \times 1.7 \text{ tons}/\text{yd}^3 = 2,000.00 \text{ tons}$
- Area 6:  $100' l \times 25' w \times 12' h = 30,000 \text{ ft}^3$   
 $30,000 \text{ ft}^3 / 27 \text{ yd}^3 = 1,111.11 \text{ yd}^3$   
 $1,111.11 \text{ yd}^3 \times 1.7 \text{ tons}/\text{yd}^3 = 2,000.00 \text{ tons}$

**Total inventory to be removed = 10,000 tons**

**Total capacity of the Containment Building = 7,614.81 yd<sup>3</sup> as listed in the RCRA Part A Permit Application, January 1999.**

**4. Unit cost of inventory disposal.**

Loading: \$2.00/ton x 10,000 tons = \$20,000.00

Transportation: \$ 18.00/ton x 10,000 tons = \$180,000.00

**Total cost of inventory disposal = \$200,000.00**

**B. DECONTAMINATION OF CONTAINMENT BUILDING**

**1. Total surface area to be decontaminated:**

Area 1 Floor: 100'l x 25'w = 2,500 ft<sup>2</sup>

Area 1 Walls: 150'l x 10'h = 1,500 ft<sup>2</sup>

Area 2 Floor: 77'l x 45'w = 3,465 ft<sup>2</sup>

Area 2 Walls: 122'l x 12'h = 1,464 ft<sup>2</sup>

Area 3 Floor: 100'l x 50'w = 5,000 ft<sup>2</sup>

Area 3 Walls: 200'l x 12'h = 2,400 ft<sup>2</sup>

Area 4 Floor: 50'l x 50'w = 2,500 ft<sup>2</sup>

Area 4 Walls: 100'l x 12'h = 1,200 ft<sup>2</sup>

Area 5 Floor: 100'l x 25'w = 2,500 ft<sup>2</sup>

Area 5 Walls: 100'l x 12'h = 1,200 ft<sup>2</sup>

Area 6 Floor: 100'l x 25'w = 2,500 ft<sup>2</sup>

Area 6 Walls: 100'l x 12'h = 1,200 ft<sup>2</sup>

**27,429 ft<sup>2</sup> = Total surface area**

Plus, 42,500 ft<sup>2</sup> of production area and 9,000 ft<sup>2</sup> trackways = 78,929 ft<sup>2</sup>

**2. Unit cost of decontamination.**

Crew = 1 supervisor (\$37.00/hour) and 20 laborers (\$18.00/hour each)

100ft<sup>2</sup>/hour x 20 laborers = 700ft<sup>2</sup>/hour

78,929ft<sup>2</sup> / 700ft<sup>2</sup>/hour = 113 hours

Plus 2 hour for equipment decontamination

115 hours x \$397.00/hour = \$45,655.00

Sweeper = 1 laborer (\$18.00) x 10 hours = \$180.00

**Total cost for decontamination = \$45,835.00**

**C. DISPOSAL OF WASH WATER**

**1. Volume of water generated during decontamination.**

High pressure wash = 4.0 gallons per ft<sup>2</sup>

78,929ft<sup>2</sup> x 4.0 gallons per ft<sup>2</sup> = 315,716 gallons

Equipment decontamination = 1,500 gallons

**Total amount of waste water = 317,216 gallons**

2. Water characterization.

Water samples: 1 sample every 5,000 gallons  
Sampling crew charge = \$50.00 / water sample  
317,216 gallons / 5,000 gallons/sample = 64 water samples  
64 water samples x \$50.00/sample = \$3,200.00

3. Transportation of wash water.

317,216 gallons / 5,000 gallons/load = 64 loads  
64 loads x \$326.00/load = \$20,864.00

4. Disposal of wash water.

317,216 gallons x \$0.15/gallon = \$47,582.40

**Total cost for disposal of wash water = \$ 71,646.40**

D. PERSONAL PROTECTIVE EQUIPMENT

1. \$45.00 per man x 21 man crew x 13 days = \$12,285.00

E. CONFIRMATION SAMPLING

1. Concrete core samples: 1 sample every 1,000ft<sup>2</sup>  
69,453ft<sup>2</sup> / 1,000ft<sup>2</sup>/sample = 70 samples  
Sampling crew charge = \$500.00 / concrete core sample  
70 concrete core samples x \$500.00/sample = \$35,000.00

2. Laboratory analysis (lead).

64 water samples x \$18.00/sample = \$1,152.00  
70 concrete core samples x \$20.00/sample = \$1,400.00  
QA/QC samples (3 water and 4 soil) = \$134.00

**Total cost for confirmation sampling = \$37,686.00**

F. EQUIPMENT LEASE

1. 2 Front end loaders x \$125.00 each = \$250.00  
2. 20 Steam Cleaners x \$180.00 each x 2 weeks = \$7,200.00  
3. 1 Sweeper truck x \$1,300.00 = \$1,300.00

**Total cost for equipment lease = \$8,750.00**

G. CLOSURE CERTIFICATION

**Lump Sum = \$9,000.00**

**CONTAINMENT BUILDING TOTAL CLOSURE COSTS = \$983,475.90**

**TABLE 1C**

**SUPPLEMENTAL CLOSURE COST INFORMATION  
K069/D008 STORAGE AREA**

**A. INVENTORY DISPOSAL**

1. Maximum quantity of inventory to be removed for reuse.

$$25'w \times 70'l = 1,750ft^2$$

4 rows with 17 pallets/row, stacked 2 pallets high = 136 pallets

136 pallets x 4 drums per pallet = 544 drums

544 drums x 55-gallon capacity/drum = 29,200 gallons – As listed in RCRA  
Part A Permit Application, January 1999.

2. Unit cost for inventory removal.

Loading: \$0.45/drum x 544 drums = \$244.80

Transportation: \$15.00/drum x 544 = \$8,160.00

**Total cost for inventory removal = \$8,404.80**

**B. DECONTAMINATION OF K069/D008 STORAGE AREA**

1. Total surface area to be decontaminated.

25'w x 70'l = 1,750ft<sup>2</sup> of surface area to be decontaminated.

2. Unit cost of decontamination.

Crew = 1 supervisor (\$37/hour) and 2 laborers (\$18.00/hour each)

300ft<sup>2</sup>/hour x 2 laborers = 600ft<sup>2</sup>/hour

1,750ft<sup>2</sup> / 600ft<sup>2</sup>/hour = 2.9 hours

Equipment decontamination = 1 hour

4 hours x \$73.00 = \$292.00

**Total cost for decontamination = \$ 292.00**

**C. DISPOSAL OF WASH WATER**

1. Volume of water generated during decontamination.

High pressure wash = 3.0 gallons per ft<sup>2</sup>

1,750ft<sup>2</sup> x 3.0 gallons per ft<sup>2</sup> = 5,250 gallons

Equipment decontamination = 500 gallons

**Total amount of waste water = 5,750 gallons**

2. Water characterization.

Water samples: 1 sample every 5,000 gallons  
Sampling crew charge = \$50.00 / water sample  
5,750 gallons / 5,000 gallons/sample = 2 water samples  
2 sample x \$50.00/sample = \$100.00

3. Transportation of wash water.

5,750 gallons / 5,000 gallons/load = 2 loads  
2 loads x \$326/gallon = \$652.00

4. Disposal of wash water.

5,750 gallons x \$0.15/gallon = \$862.50

**Total cost for disposal of wash water = \$ 1,614.50**

D. PERSONAL PROTECTIVE EQUIPMENT

1. \$45.00 per man x 3 man crew = \$135.00

E. CONFIRMATION SAMPLING

1. Concrete core samples: 1 sample every 1,000ft<sup>2</sup>  
1,750ft<sup>2</sup> / 1,000ft<sup>2</sup>/sample = 2 samples  
Sampling crew charge = \$500.00 / concrete core sample  
2 concrete core samples x \$500.00/sample = \$1,000.00

2. Laboratory analysis (lead).

2 water samples x \$18.00/sample = \$36.00  
2 concrete core samples x \$20.00/sample = \$40.00  
QA/QC samples (1 water and 1 soil) = \$38.00

**Total cost for confirmation sampling = \$1,114.00**

F. EQUIPMENT LEASE

1. 1 Fork lift = \$75.00  
2. 2 Steam cleaners: 2 x \$45.00 = \$90.00

**Equipment lease total = \$165.00**

G. CLOSURE CERTIFICATION

**Lump sum = \$4,000.00**

**K069/D008 STORAGE AREA TOTAL CLOSURE COSTS = \$15,725.30**

**TABLE 1D**

**SUPPLEMENTAL CLOSURE COST INFORMATION  
TRUCK/TRAILER STORAGE AREA**

**A. INVENTORY DISPOSAL**

1. Maximum quantity of inventory to be removed for reuse.

85,000 batteries on pallets stored on trucks or trailers.

1 battery = 1 gallon. Total capacity = 85,000 gallons – As listed in RCRA  
Part A Permit Application, January 1999.

2. Unit cost for inventory removal.

Loading batteries: 85,000 batteries x \$0.01/battery = \$850.00

Transportation: 85,000 batteries x \$0.42/battery = \$35,700.00

**Total cost for inventory removal = \$36,550.00**

**B. DECONTAMINATION OF TRUCK/TRAILER STORAGE AREA**

1. Total surface area to be decontaminated.

120'w x 120'l = 14,400ft<sup>2</sup> of surface area to be decontaminated.

2. Unit cost of decontamination.

Crew = 1 supervisor (\$37/hour) and 4 laborers (\$18.00/hour each)

600ft<sup>2</sup>/hour x 4 laborers = 2,400ft<sup>2</sup>/hour

14,400ft<sup>2</sup> / 2,400ft<sup>2</sup>/hour = 6 hours

6 hours x \$109.00 = 654.00

**Total cost for decontamination = \$ 654.00**

**C. DISPOSAL OF WASH WATER**

1. Volume of water generated during decontamination.

High pressure wash = 1.2 gallons per ft<sup>2</sup>

14,400ft<sup>2</sup> x 1.2 gallons per ft<sup>2</sup> = 17,280 gallons

2. Water samples: 1 sample every 5,000 gallons

Sampling crew charge = \$50.00 / water sample

17,280 gallons / 5,000 gallons/sample = 6 water samples

6 water samples x \$50.00/sample = \$300.00



3. Transportation of wash water.

17,280 gallons / 5,000 gallons/load = 4 loads

4 loads x \$326.00 = \$1,304.00

4. Disposal of wash water.

17,280 gallons x \$0.15/gallon = \$2,592.00

**Total cost for disposal of wash water = \$ 4,196.00**

D. PERSONAL PROTECTIVE EQUIPMENT

1. \$45.00 per man x 5 man crew = \$225.00

E. CONFIRMATION SAMPLING

1. Concrete core samples: 1 sample every 1,000ft<sup>2</sup>

14,400ft<sup>2</sup> / 1,000ft<sup>2</sup>/sample = 15 samples

Sampling crew charge = \$500.00 / concrete core sample

15 concrete core samples x \$500.00/sample = \$7,500.00

2. Laboratory analysis (lead).

6 water samples x \$18.00/sample = \$108.00

15 concrete core samples x \$20.00/sample = \$300.00

QA/QC samples (1 water and 1 soil) = \$38.00

**Total cost for confirmation sampling = \$7,946.00**

F. EQUIPMENT LEASE

4 Steam cleaners: 4 x \$45.00 = \$180.00

G. CLOSURE CERTIFICATION

**Lump Sum = \$3,500.00**

**TRUCK/TRAILER STORAGE AREA TOTAL CLOSURE COSTS = \$53,251.00**

**TABLE 1E**

**SUPPLEMENTAL CLOSURE COST INFORMATION  
WHOLE BATTERY STORAGE AREA**

**A. INVENTORY DISPOSAL**

1. Maximum quantity of inventory to be removed for reuse.

$$75'w \times 100'l = 7,500ft^2$$

$$20 \text{ rows} \times 18 \text{ pallets per row} \times 3 \text{ pallets high} = 1,080 \text{ pallets}$$

$$1,080 \text{ pallets} \times 75 \text{ batteries per pallet} = 81,000 \text{ batteries}$$

1 battery = 1 gallon. Total capacity = 81,000 gallons – As listed in RCRA Part A Permit Application, January 1999.

2. Unit cost for inventory removal.

$$\text{Loading: } 81,000 \text{ batteries} \times \$0.05/\text{battery} = \$4,050.00$$

$$\text{Transportation: } 81,000 \text{ batteries} \times \$0.42/\text{battery} = \$34,020.00$$

$$\text{Total cost for inventory removal} = \$38,070.00$$

**B. DECONTAMINATION OF WHOLE BATTERY STORAGE AREA**

1. Total surface area to be decontaminated.

$$750'w \times 100'l = 7,500ft^2 \text{ of surface area to be decontaminated.}$$

2. Unit cost of decontamination.

$$\text{Crew} = 1 \text{ supervisor } (\$37/\text{hour}) \text{ and } 4 \text{ laborers } (\$18.00/\text{hour each})$$

$$600ft^2/\text{hour} \times 3 \text{ laborers} = 1,800ft^2/\text{hour}$$

$$7,500ft^2 / 1,800ft^2/\text{hour} = 4 \text{ hours}$$

$$\text{Equipment decontamination} = 1 \text{ hour}$$

$$5 \text{ hours} \times \$91.00 = \$455.00$$

$$\text{Total cost for decontamination} = \$ 455.00$$

**C. DISPOSAL OF WASH WATER**

1. Volume of water generated during decontamination.

$$\text{High pressure wash} = 1.2 \text{ gallons per } ft^2$$

$$7,500ft^2 \times 1.2 \text{ gallons per } ft^2 = 9,000 \text{ gallons}$$

$$\text{Equipment decontamination} = 500 \text{ gallons}$$

$$\text{Total amount of waste water} = 9,500 \text{ gallons}$$

2. Water samples: 1 sample every 5,000 gallons  
Sampling crew charge = \$50 / water sample  
 $9,500 \text{ gallons} / 5,000 \text{ gallons/sample} = 2 \text{ water samples}$   
 $2 \text{ water samples} \times \$50.00/\text{sample} = \$100.00$

3. Transportation of wash water.

$9,500 \text{ gallons} / 5,000 \text{ gallons/load} = 2 \text{ loads}$   
 $2 \text{ loads} \times \$326.00 = \$652.00$

4. Disposal of wash water.

$9,500 \text{ gallons} \times \$0.15/\text{gallon} = \$1,425.00$

**Total cost for disposal of wash water = \$ 2,177.00**

**D. PERSONAL PROTECTIVE EQUIPMENT**

1.  $\$45.00 \text{ per man} \times 4 \text{ man crew} = \$180.00$

**E. CONFIRMATION SAMPLING**

1. Concrete core samples: 1 sample every 1,000ft<sup>2</sup>  
 $7,500\text{ft}^2 / 1,000\text{ft}^2/\text{sample} = 8 \text{ samples}$   
Sampling crew charge = \$500.00 / concrete core sample  
 $8 \text{ concrete core samples} \times \$500.00/\text{sample} = \$4,000.00$

2. Laboratory analysis (lead).

$2 \text{ water samples} \times \$18.00/\text{sample} = \$36.00$   
 $8 \text{ concrete core samples} \times \$20.00/\text{sample} = \$160.00$   
QA/QC samples (1 water and 1 soil) = \$38.00

**Total cost for confirmation sampling = \$4,234.00**

**F. EQUIPMENT LEASE**

1. 1 Fork lift = \$75.00  
2. 3 Steam cleaners:  $3 \times \$45.00 = \$135.00$

**Equipment lease total = \$210.00**

**G. CLOSURE CERTIFICATION**

**Lump sum = \$3,500.00**

**WHOLE BATTERY STORAGE AREA TOTAL CLOSURE COSTS = \$48,826.00**

TABLE 2

## POST CLOSURE CARE COST ESTIMATE

| Description  | Units | Unit Cost  | Total Yearly Cost   |
|--|-------|------------|---------------------|
| <b>TWO CLOSED WASTE PILES</b>                              |       |            |                     |
| 1 Cover Maintenance  |       |            |                     |
| a. Top Soil Maintenance (5 acres)                          | 5     | \$100.00   | \$500.00            |
| b. Fertilizing and Reseeding (5 acres)                     | 5     | \$60.00    | \$300.00            |
| c. Grass Cutting and Upkeep (\$40.00/acre x 4 events)      | 5     | \$160.00   | \$800.00            |
| d. Engineer's Inspection                                   | 1     | \$300.00   | \$300.00            |
| Subtotal   |       |            | \$1,900.00          |
| TOTAL (18 years of Post-Closure Monitoring)                | 18    | \$1,900.00 | \$34,200.00         |
| 2 Groundwater Monitoring (7 Wells)                         |       |            |                     |
| a. Purging and Sampling (Twice a Year at \$50.00 per well) | 7     | \$100.00   | \$700.00            |
| b. Laboratory Analysis (Twice a Year at \$230.00 per well) | 8*    | \$460.00   | \$3,680.00          |
| c. Annual Report   | 1     | \$600.00   | \$600.00            |
| Subtotal   |       |            | \$4,980.00          |
| TOTAL (18 years of Post-Closure Monitoring)                | 18    | \$4,980.00 | \$89,640.00         |
| 3 LDEQ Annual Monitoring and Maintenance Fee               | 7     | \$250.00   | \$1,750.00          |
| TOTAL (18 years of Post-Closure Monitoring)                | 18    | \$1,750.00 | \$31,500.00         |
| <b>POST-CLOSURE COSTS - CLOSED WASTE PILES</b>             |       |            | <b>\$155,340.00</b> |
| Plus 10% Contingency                                       |       |            | \$15,534.00         |
| <b>TOTAL POST-CLOSURE COSTS</b>                            |       |            | <b>\$170,874.00</b> |

\* Cost includes analyzing 1 duplicate sample.

## FIGURES



**APPENDIX D**

**EXIDE INSPECTION FORM**

## EXIDE CORPORATION - BATON ROUGE SMELTER HAZARDOUS WASTE INSPECTION SCHEDULE MONTHLY AND WEEKLY

[illegible]



**EXIDE CORPORATION - BATON ROUGE SMELTER**  
**HAZARDOUS WASTE INSPECTION SCHEDULE**  
**MONTHLY AND WEEKLY**

| DATE/TIME   |    |     |    |     |    |     |    |     |    |     |    |     |
|---|----|-----|----|-----|----|-----|----|-----|----|-----|----|-----|
| INSPECTOR   |    |     |    |     |    |     |    |     |    |     |    |     |
| STATUS  | OK | NOK | OK | NOK | OK | NOK | OK | NOK | OK | NOK | OK | NOK |
| <b>TRUCK/TRAILER AREA</b>   |    |     |    |     |    |     |    |     |    |     |    |     |
| 1. Containers and trailers are structurally sound with covers or tops in place.         |    |     |    |     |    |     |    |     |    |     |    |     |
| 2. There are no cracks, gaps or pooled water on the base nor accumulated water in sump. |    |     |    |     |    |     |    |     |    |     |    |     |
| 3. Warning signs are in place.  |    |     |    |     |    |     |    |     |    |     |    |     |
| 4. Runon-runoff system works.   |    |     |    |     |    |     |    |     |    |     |    |     |
| <b>WHOLE BATTERY</b>  |    |     |    |     |    |     |    |     |    |     |    |     |
| <b>CONTAINER AREA</b>   |    |     |    |     |    |     |    |     |    |     |    |     |
| 1. Containers are structurally sound with covers in place.                              |    |     |    |     |    |     |    |     |    |     |    |     |
| 2. There are no cracks, gaps or pooled water on the base nor accumulated water in sump. |    |     |    |     |    |     |    |     |    |     |    |     |
| 3. The warning signs are in place.  |    |     |    |     |    |     |    |     |    |     |    |     |
| <b>K069 CONTAINER AREA</b>  |    |     |    |     |    |     |    |     |    |     |    |     |
| 1. Containers are structurally sound with covers in place.                              |    |     |    |     |    |     |    |     |    |     |    |     |
| 2. The containers are on pallets and above any liquid on the floor.                     |    |     |    |     |    |     |    |     |    |     |    |     |

DATE AND NATURE OF REPAIRS OR ACTIONS: \_\_\_\_\_

**MONTHLY**

**1. Closed area, Security, Monitoring Wells;**

Date \_\_\_\_\_ Time \_\_\_\_\_ Inspector \_\_\_\_\_

- a. No apparent clay cap erosion.
- b. Leachate collection system operating properly.
- c. No ants, termites, or burrowing animals detrimental to clay cap.
- d. Seal around monitoring well is unbroken.
- e. No holes or breaks in monitoring well casing /covers.
- f. Warning signs, security fences in place.

| OK | Other |
|----|-------|
|    |       |
|    |       |
|    |       |
|    |       |
|    |       |
|    |       |
|    |       |

**2. Safety Communication Equipment;**

Date \_\_\_\_\_ Time \_\_\_\_\_ Inspector \_\_\_\_\_

- a. Each fire hose, extinguisher is operable and accessible.
- b. Telephone and alarm system is operable.
- c. Special respirator is operable.

| OK | Other |
|----|-------|
|    |       |
|    |       |
|    |       |

DATE AND NATURE OF REPAIRS OR ACTIONS: \_\_\_\_\_

## **APPENDIX 13**

### **OPERATIONAL PROCEDURES: DUST SUPPRESSION AND FEED PILE INSPECTIONS**

## **-- OPERATIONAL PROCEDURE**

### **CONTAINMENT BUILDING DUST SUPPRESSION**

All of the lead-bearing materials stored in the Containment Building are kept in feed piles. These feed piles are typically undisturbed except for when the material is placed into the pile and when it is taken to the furnace for smelting. The feed piles are arranged in the Containment Building based on what the material in the pile will be used for. For example, the feed pile located east of the north doorway is used to feed the No. 3 reverberatory furnace.

Lead-bearing material is placed into a feed pile either by dumping from a truck, emptying a 55-gallon drum or by unloading with a scoop bucket. As the material is unloaded, the pile is sprayed with a light mist, using one of the water hoses in the Containment Building. The hoses in the Containment Building are all 1-inch lines with water pressures typically less than 30 psi. Each hose is equipped with a mister nozzle; designed to cover a high surface area with a low volume of water. Care is taken so that dust suppression liquids do not accumulate into standing puddles. This procedure is also followed if material is moved from one feed pile to another.

The amount of water that is sprayed on the pile is kept to a minimum. For operations and safety purposes, any material that is feed for a furnace needs to be as dry as possible. If water from dust suppression accumulates in the Containment Building, the puddles will be either pumped to a sump or removed using absorbent materials.

Currently, Exide uses only clean water for dust suppression. Other methods of dust suppression are being evaluated and may be implemented in the future. Exide does not use any oils or any other material that is contaminated for dust suppression.

## **OPERATIONAL PROCEDURE**

### **FEED PILE CONTAINMENT INSPECTION**

All of the lead-bearing materials stored in the Containment Building are kept in feed piles. These feed piles are typically undisturbed except for when the material is placed into the pile and when it is taken to the furnace for smelting. The feed piles are arranged in the Containment Building based on what the material in the pile will be used for. For example, the feed pile located east of the north doorway is used to feed the No. 3 reverberatory furnace.

As material is removed from the feed pile and recycled in one of the furnaces, the open area will be cleaned using one of the Exide roadway sweepers and inspected by the shift foreman and the Environmental Department. The primary containment barrier, the floor and walls, will be inspected for cracks, gaps, corrosion, or other deterioration that may cause a release. If any problems are encountered, the area will be isolated, a work order will be initiated and the proper repairs will be conducted.

Typically, at least once per year, the feed piles will be cleared, and the entire floor and wall area will be cleaned and inspected. Repairs will be conducted if necessary. Once the proper repairs have been completed, lead-bearing material will again be placed in the pile.

**APPENDIX 14**

**PREAPPLICATION MEETING MINUTES**

**APPENDIX 15**  
**GROUNDWATER SAMPLING RESULTS**

**TABLE 1  
MONITOR WELL DATA**

|                                   |             |               |               |               |               |               |               |
|-----------------------------------|-------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Latitude                          | 30°35'2"    | 30°35'12"     | 30°35'14"     | 30°35'4"      | 30°35'10"     | 30°35'07"     | 30°35'05"     |
| Longitude                         | 91°14'33"   | 91°14'43"     | 91°14'42"     | 91°14'43"     | 91°14'44"     | 91°14'45"     | 91°14'44"     |
| Type                              | Detection   | Detection     | Detection     | Detection     | Detection     | Detection     | Detection     |
| Unit Monitored                    | Up Gradient | Waste Pile #1 | Waste Pile #1 | Waste Pile #2 | Waste Pile #1 | Waste Pile #2 | Waste Pile #2 |
| Date Constructed                  | 1/20/95     | 12/21/94      | 12/20/94      | 12/28/94      | 12/22/94      | 12/22/94      | 2/8/95        |
| Construction                      | 2" PVC      | 2" PVC        | 2" PVC        | 2" PVC        | 2" PVC        | 2" PVC        | 2" PVC        |
| Sampling Method                   | Bailer      | Bailer        | Bailer        | Bailer        | Bailer        | Bailer        | Bailer        |
| Casting Elevation (feet MSL)      | 85.10       | 48.17         | 50.63         | 78.80         | 48.29         | 53.64         | 78.64         |
| Well Depth (feet)                 | 45.0        | 34.0          | 40.0          | 46.7          | 28.0          | 40.0          | 42.0          |
| Screen Interval, From (feet MSL)  | 48.10       | 21.50         | 18.80         | 41.10         | 29.20         | 28.90         | 43.90         |
| To (feet MSL)                     | 38.10       | 11.50         | 9.80          | 31.10         | 19.20         | 18.90         | 33.90         |
| Elevation of Water (feet MSL)     | 58.06       | 37.13         | 38.92         | 49.62         | 38.49         | 42.29         | 47.05         |
| Total Gallons Purged              | 12.0        | 14.0          | 15.0          | 11.0          | 11.0          | 12.0          | 8.0           |
| Date Sampled                      | 5/31/01     | 5/31/01       | 5/31/01       | 6/1/01        | 5/31/01       | 6/1/01        | 6/1/01        |
| <b>GROUNDWATER QUALITY (mg/l)</b> |             |               |               |               |               |               |               |
| Iron                              | 1.08        | 4.60          | 0.30          | 6.49          | 5.22          | 0.52          | 5.32          |
| Manganese                         | 0.02        | 0.16          | 0.15          | 0.12          | 0.09          | 0.05          | 0.09          |
| Sodium                            | 33.0        | 48.0          | 46.9          | 51.8          | 106.0         | 99.1          | 169.0         |
| Chloride                          | 25.1        | 200           | 213           | 12.9          | 419           | 284           | 498           |
| Sulfate                           | 16.4        | 20.4          | 134           | 40.5          | 255           | 154           | 55            |
| Lead - Dissolved                  | 0.022       | <0.003        | <0.003        | <0.003        | <0.003        | 0.009         | <0.003        |
| Cadmium - Dissolved               | <0.005      | <0.005        | <0.005        | <0.005        | <0.005        | <0.005        | <0.005        |
| <b>INDICATOR PARAMETERS</b>       |             |               |               |               |               |               |               |
| pH                                | 7.10        | 7.10          | 7.10          | 6.80          | 7.00          | 7.00          | 6.80          |
| Specific conductivity             | 584         | 1,060         | 1,280         | 415           | 1,960         | 1,540         | 1,780         |

## **APPENDIX 16**

# **SPILL PREVENTION, CONTROL & COUNTERMEASURE PLAN**



# **SPILL PREVENTION CONTROL AND COUNTERMEASURE PLAN**

**EXIDE CORPORATION, BATON ROUGE SMELTER  
BATON ROUGE, LOUISIANA**

*Prepared for:*

**EXIDE CORPORATION  
P.O. BOX 74040  
BATON ROUGE, LOUISIANA**



*Prepared by:*

**M.S. ENVIRONMENTAL CONSULTANTS, INC.  
BATON ROUGE, LOUISIANA**

**May, 1998  
Revision 1- May, 2000  
Project No. 20046**

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### APPENDICES

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## **I. INTRODUCTION**

This Spill Prevention Control and Countermeasure (SPCC) plan has been prepared as a fulfillment of a regulatory requirement by the Louisiana Department of Environmental Quality (LDEQ), Office of Water Resources which requires the preparation of a plan to address potential release of oil or other substances into state waterways.

This SPCC plan has been prepared in accordance with the specific requirements set forth in Chapter 9 of the Louisiana Water Quality Regulations, which were promulgated November 20, 1985. These regulations are equivalent to the requirements of Title 40 Code of Federal Regulations (CFR), Part 112, "Guidelines for Preparation and Implementation of a Spill Prevention Control and Countermeasure Plan" for oil and hazardous substances. These regulations require contingency planning and implementation of operational procedures in accordance with best management practices to prevent and control discharges of pollutants resulting from a spill event that have the potential to reach the waters of the State of Louisiana.

In accordance with the applicable regulations, a copy of the SPCC plan will be maintained at the Exide Corporation, Baton Rouge smelter. This SPCC plan will be made available to authorized representatives of the LDEQ for onsite review during normal working hours.

This SPCC plan will be reviewed at least every three years and will be amended as necessary to include more effective prevention and control technology, if such technology will significantly reduce the likelihood of a spill event and if such technology has been field proven at the time of review. If there is a modification in facility design, construction, storage capacity, operation or maintenance which renders this SPCC plan inadequate, this plan will be amended and implemented as prescribed prior to or concurrent with the facility modifications. No amendment to this plan, except those proposed by LDEQ, will be effective unless it has been certified by a Registered Professional Engineer.


As included in Section II, this SPCC plan has the approval of management at a level of authority necessary to commit the required resources for proper implementation.

Also, included with management approval is certification that preparation of the plan is in accordance with sound engineering practices.

## II. MANAGEMENT APPROVAL AND CERTIFICATION

### MANAGEMENT APPROVAL

This SPCC plan will be implemented as herein described.

Signature:   
Name: Stephen A. Grau  
Title: Plant Manager

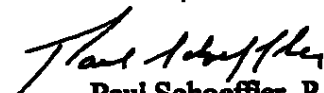
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### CERTIFICATION

I hereby certify that I have examined the facility, and familiar with the provisions of 40 CFR Part 112 and Chapter 9 of the Louisiana Water Quality Regulations, attest that this SPCC plan has been prepared in accordance with the guidelines presented therein and sound engineering practices.



Signature:

  
Paul Schoeffler, P.E.  
Civil Engineer

Date: May 31, 2000

Registration No. 5555

State Louisiana

### **III. GENERAL INFORMATION**

#### **A. FACILITY INFORMATION**

1. Name of Facility: Exide Corporation, Baton Rouge Smelter  
Baton Rouge, Louisiana
2. Type of Facility: Secondary lead smelter plant
3. Location of Facility: 2400 Brooklawn Drive, off State Highway 61  
Baton Rouge, Louisiana  
East Baton Rouge Parish
4. Name and Address of Owner  
or Operator: Exide Corporation  
P.O. Box 74040  
Baton Rouge, Louisiana 70874
5. Designated person accountable for oil spill prevention at the facility:  
  
Name and Title: Mr. Steve Krul  
Environmental Manager
6. Reportable spill events during the twelve months prior to January 10, 1974  
(effective date of 40 CFR, Part 112):  
  
None

#### **B. GENERAL DESCRIPTION OF THE FACILITY**

The Baton Rouge Smelter is located at the end of Brooklawn Drive, in the northeast portion of Baton Rouge, Louisiana. The coordinates for the facility are West Latitude 30° 35' 08"; North Longitude 91° 14' 40". The smelter has been in operations at this location since 1969. The site comprises approximately 33 acres and is zoned industrial. Baton Rouge Bayou makes up the north and western boundaries of the site. Reynolds Metals is on the east side of the site and NPC Services, Inc. is located across from Brooklawn Drive south of the site.

The facility is a secondary lead smelter and refinery which recycles spent lead-acid batteries and inorganic lead-bearing wastes into metallic lead, in the form of lead pig and block ingots. The product lead is sold to customers for use in making batteries, weights, bearings, ammunition, and chemicals. The facility is

regulated as a recycling facility under the Resource Conservation and Recovery Act (RCRA).

Some of the raw materials used in the process and stored on site are classified as hazardous wastes by regulation. Exide was issued a Hazardous Waste Permit (LAD008184137) to operate three container storage areas (the Truck/trailer Storage area, the K069/D008 Storage area and the Whole Battery Storage area). Exide operates a Containment Building, which is currently under interim status. A hazardous waste treatment unit, the Slag Stabilization unit, is also permitted under LAD008184137.

Lead acid batteries are either fed directly into the battery breaker or are stored temporarily at the truck/trailer storage area and the Whole Battery Storage area. Lead acid batteries are processed in the battery breaker unit, by cutting the batteries, and hydraulically separating the individual components. The plastic is thoroughly washed to remove residual acid and lead. It is then loaded into trailers and shipped offsite for recycling. The battery acid, a weak sulfuric acid solution, is neutralized with sodium hydroxide and crystallized to form sodium sulfate salt. The salt is sold as a product. The lead material from the batteries is processed to convert lead sulfate to lead oxide. The lead oxide paste is then stored in the containment building prior to recycling.

The facility operates two blast furnaces and one reverberatory furnace that are used to smelt the lead-bearing raw materials. The molten lead is cast either into ingots using two casting machines or blocks using molds. Additionally, the facility operates a billet casting machine to produce lead billets. The finished lead is tested to determine if it meets client specifications and is then loaded into trucks and transported off-site for reuse.

As a part of the lead recycling, a blast furnace slag is generated. This slag is allowed to cool, crushed to small diameter, and treated using a mixture of cement and sodium silicate, as specified in Exide's Hazardous Waste Permit. The stabilized slag is rock-like in appearance and engineering properties. After treatment, the slag is placed in a permitted onsite solid waste landfill.

#### **IV. SPILL PREVENTION CONTROL AND COUNTERMEASURE PLAN**

**LAC 33:IX.907.A**

The Plan shall be prepared in accordance with sound engineering practices. If the Plan calls for additional facilities or procedures, methods, or equipment not yet fully operational, these items shall be discussed, and the details of installation and operational start-up shall be explained individually. The office recognizes that the designs of major facilities differ and that in certain cases the appropriate methods for spill prevention and control must be site-specific. While the guidelines presented herein suggest the use of specific methodologies for this purpose, alternate methods may be employed if it can be demonstrated to the satisfaction of the office that the alternate methods will adequately prevent and control spills, and that they are reasonably equivalent to the suggested methods. A complete plan shall follow the sequence outlined in LAC 33:IX.903.B through E.

**RESPONSE:**

This plan has been prepared in accordance with sound engineering practices. Certification of this plan's preparation is provided in Section II Management Approval and Certification. In accordance with the Louisiana Water Quality Regulations, this SPCC plan follows the regulatory sequence outlined in LAC 33:IX.903.B through E.

**LAC 33:IX.907.B**

A complete plan shall include the following:

**LAC 33:IX.907.B**

1.

name of the facility;

**RESPONSE:**

The name of the facility is Exide Corporation (Exide), Baton Rouge Smelter.

**LAC 33:IX.907.B**

2.

name of the operator of the facility;

**RESPONSE:**

The name of the operator is Exide Corporation.



**LAC 33.IX.907.B**  
**3.**

**mailing address of the facility;**

**RESPONSE:**

Exide Corporation  
P.O. Box 74040  
Baton Rouge, Louisiana 70874

**LAC 33.IX.907.B**  
**4.**

**location of the facility;**

**RESPONSE:**

Exide's secondary lead smelter plant is located in East Baton Rouge Parish, approximately 2 miles west of the intersection of U.S. Highway 61 and Brooklawn Drive, Baton Rouge, Louisiana.

**LAC 33.IX.907.B**  
**5.**

**date and year of initial facility operation;**

**RESPONSE:**

The Baton Rouge Smelter commenced its operation in 1969.

**LAC 33:IX.907.B**  
**6.**

**a brief but adequate description of the facility, including an indication of the nearest potential receiving waters:**

**RESPONSE:**

A brief description of the facility has been included in Section B - General Description of the Facility. The surface drainage from the facility flows into Baton Rouge Bayou.

**LAC 33:IX.907.B**  
**7.**

**the identity, amount, and location of substances stored at the facility meeting the applicability criteria outlined in Section 903 of this Chapter; and**

**RESPONSE:**

Information regarding the identity, amount, location of substances stored at the facility meeting the applicability criteria outlined in Section 903 of this Chapter is provided in Table 1. This table is prepared in such a manner as to identify fuel (diesel and gasoline), waste oil, and kerosene at the facility with their corresponding locations at the facility as indicated in Figure 3. Additional information

regarding chemical and physical characteristics of the substances stored at the facility is provided in Material Safety Data Sheets (MSDSs) maintained at the facility.

**LAC 33.IX.907.B**

**8.**

**facility capability and procedures for taking corrective actions and/or countermeasures when a spill event occurs.**

**RESPONSE:**

In order to provide assistance in the event of a disaster and to assure the proper control of a spill that may occur at the facility, Exide has prepared an emergency contingency plan which outlines the Emergency Response Organization. The Emergency Response Organization consists of the Environmental Manager or his/her designee who will serve as the On-site Coordinator. The On-site Coordinator will report an incident of spill to the Plant Manager. A summary of spill response action plans is included in Appendix C. The On-Site Coordinator will be responsible for conducting appropriate remedial activities at the facility site. The specifics regarding Emergency Response Organization are, including communications and response procedures are as follows:

1. Upon indication of an imminent or an actual emergency at the facility, the On-site Coordinator, Mr. Steve Krul, Environmental Manager, if unavailable, Mr. Mike Ashford, Maintenance Supervisor or Mr. Steve Grau, Plant Manager, will be contacted immediately and notified of the location and nature of the emergency. If none of the three individuals are available at the site/in the office, they will be contacted at their residences at the following numbers:

Mr. Steve Krul  
Environmental Manager  
(225) 756-5866

Mr. Mike Ashford  
Maintenance Superintendent  
(225) 344-6857

**Mr. Steve Grau  
Plant Manager  
(225) 667-7146**

2. **The On-site Coordinator, Mr. Steve Krul will immediately contact Mr. Steve Grau, Plant Manager at the facility. If Mr. Grau is not available in the office, he will be contacted at his residence.**
3. **The Environmental Manager will immediately notify the appropriate state and local agencies with designated response roles if their help is needed. In the event of spill of any material on which maintenance of MSDS is required and the spill exceeds the reportable quantity, or if the spill causes emergency conditions (irrespective of the quantity), the Environmental Manager will notify the Department of Public Safety (DPS) hotline within one hour after learning of the discharge. The telephone number for the DPS hotline is (225) 925-6595.**

**The following government agencies and emergency response action contractors may be contacted, depending upon the nature of spill/emergency:**

- 1) **U.S. EPA Region IV  
Dallas, Texas  
Phone: (214) 665-2222 (24 Hours)**
- 2) **LA Dept. of Environmental Quality  
Baton Rouge, Louisiana  
Phone: (225) 342-1234 (24 Hours)**
- 3) **U.S. Coast Guard  
New Orleans, Louisiana  
Phone: (504) 589-6261 (24 Hours)**
- 4) **National Response Center (NRC)  
Washington, D.C.  
Phone: 1-800-424-8802 (24 Hours)**

- 5) Fire Department/Emergency  
Phone: 911
  - 6) State Police, Troop A  
Baton Rouge, Louisiana  
Phone: (225) 754-8500
  - 7) East Baton Rouge Sheriff's Office  
Phone: (225) 389-5000
  - 8) HAZMATT/TESS  
Baton Rouge, LA  
(225) 925-6595
4. Whenever there is a release, fire, or explosion, the On-Site Coordinator will immediately identify the character, exact source, amount, and areal extent of any released materials. He may do so by observation or review of facility records or manifests (maintained at the facility site) and material safety data sheets (MSDS), and if necessary, by chemical analysis.
  5. Concurrently, the On-Site Coordinator will assess possible hazards to human health and the environment that may result from the release, fire, or explosion. This assessment will consider both direct and indirect effects of the release, fire, or explosion (e.g. the effects of any toxic, irritating, or asphyxiating gases that are generated, or the effects of any hazardous surface run-off from water of chemical agents used to control fire and heat-induced explosions).
  6. If the On-Site Coordinator determines that the facility has had a release, fire, or explosion which could threaten human health and/or the environment outside the facility, telephone notification reports to the appropriate state or local agency will be followed with written reports within seven (7) days of telephone notification. A copy of Exide Corporation's Oil Spill Report Form is provided in Appendix D.

7. During an emergency, the On-Site Coordinator will take all reasonable measures necessary so that fires, explosions, and releases do not occur, reoccur, or spread to other locations outside the facility. These measures will include, where applicable, stopping operations, collecting and containing released substances, and isolating tanks.
8. Immediately after any emergency, the On-Site Coordinator, in consultation with the Plant Manager, will provide for treating, storing, or disposing of recovered substances, contaminated soil or surface water, or any other material that results from a release, fire, or explosion at the facility.
9. The On-Site Coordinator will ensure that in the affected area(s) of the facility:
  - a. No waste that may be incompatible with the released material is treated, stored, or disposed of until procedures are completed.
  - b. All emergency equipment is cleaned and fit for its intended use before operations are resumed.
10. Upon completion of site cleanup activities, Exide's Environmental Manager will notify the EPA Regional Administrator, and appropriate state and local authorities that the facility is in compliance with paragraph 7 of this Section before operations are resumed in the affected area(s) of the facility.
11. The Environmental Manager will note in the operating record the time, date, and details of the incident. Within 7 days after the incident, he must submit a written report regarding the incident to the EPA Regional Administrator. The report will include:
  - a. Name, address, and telephone number of the owner or operator;

- b. Name, address, and telephone number of the facility;
- c. Date, time, and nature of incident (e.g., fire, explosion);
- d. Name and quantity of material(s) involved in the incident;
- e. The extent of injuries, if any;
- f. An assessment of actual or potential hazard to human health and the environment;
- g. Information regarding an estimated quantity and disposal of the recovered material that resulted from the incident;
- h. The corrective actions and/or countermeasures taken, including an adequate description of equipment repairs and/or replacements;
- i. Additional preventive measures taken or contemplated to minimize the possibility of reoccurrence; and
- j. Such other information as the EPA Regional Administrator and/or LDEQ may reasonably require pertinent to the plan or spill event.

**LAC 33:IX.907.C**

The plan shall include a prediction of the direction, rate of flow and total quantity of applicable substances which could be spilled at the facility where experience indicated a reasonable potential for equipment failure and/or human error.

**RESPONSE:**

The direction in which spilled substances would flow is Baton Rouge Bayou. In addition, information regarding the predicted direction of flow is also provided in Figure 2 Site Topographic Map.

In the event of a worst-case spill scenario, the pumps maintained at the facility will be used to contain a spill by pumping liquids to containment structures. The secondary containment structures have been designed to hold 110% of the tank contents. In a worst-case spill scenario described above, the entire contents of the single largest tank unit would be contained in the concrete containment around the tank.

**Appropriate containment and/or diversionary structures or equipment to prevent an applicable spilled substance from reaching waters of the state should be provided. One of the following should be used as a minimum:**

- 1. dikes, berms or retaining walls sufficiently impervious to contain spills;**
- 2. curbing, drip pans;**
- 3. culverts, gutters or other drainage systems;**
- 4. weirs, booms or other barriers;**
- 5. spill diversion ponds;**
- 6. retention ponds;**
- 7. sorbent substances; and**
- 8. sumps and collection systems.**

**RESPONSE:**

The containment area is build around the base of the tanks. The containment area is constructed of 6" thickness impervious concrete monopoured. The containment is capable of holding the entire contents of the largest tank plus approximately 12" of precipitation falling directly in the containment. This area is located at an elevation higher than the surrounding area such that storm runoff will be diverted around the containment area at an elevation above the 100 year flood plain. The containment has one drain with a locked valve through which precipitation is removed after storms. The maintenance shop supervisor or his designate are responsible for removal of the storm water. This water will be inspected for oil residues prior to removal. In addition, Exide has provided and will maintain the following containment and/or diversionary structures or equipment at the facility site to prevent migration of tank contents to waters of the state:

1. Maintain at least ten 55 gallon DOTD-approved steel drums and two spill response kits containing sorbent granules, pad/mats, and socks. The kits also contain disposable personnel protective clothing, and a disposable drum with appropriate labels of hazardous or non-hazardous materials.

**LAC 33:IX.907.E**

When it is determined that the installation of structures or equipment listed in LAC 33:IX.907.D of this Chapter is not practical, the owner/operator of an applicable facility shall clearly demonstrate such impracticality and provide a strong spill contingency plan, including a written commitment of the manpower, equipment, and materials required to ensure timely and effective action to minimize damage resulting from a spill event.

**RESPONSE:**

Exide has made provisions to contain spills at the facility through constructing secondary containment structures around the tanks. In addition, an adequate number of containers and pumps are maintained at the facility site. Exide also maintains an adequate number of spill response kits containing sufficient quantity of absorbent granules, pads, and socks.

**LAC 33:IX.907.F**

In addition to the minimal prevention standards listed under LAC 33:IX.907.D of this Chapter, sections of the plan should include a complete discussion of conformance with the following applicable guidelines or other effective spill prevention and containment procedures:

**LAC 33:IX.907.F**

1.

All storage tank installations should be constructed so that a secondary means of containment is provided for the entire contents of the largest single tank plus sufficient freeboard to allow for precipitation. Diked areas should be sufficiently impervious to contain spills.

**RESPONSE:**

All storage tank installations are constructed so that a secondary means of containment is provided for the entire contents of the largest single tank plus 10%. Diked areas are sufficiently impervious to contain spills.



**LAC 33:IX.907.F**

**2.**

**Drainage from diked areas should be restrained by valves or other positive means to prevent a spill event, except where facility treatment systems are designed to handle such spills. Flapper-type valves should not be used as a restrained device. Valves used for the drainage of diked areas should, as far as possible, be of manual, open-and-closed design. In all cases, drainage from diked areas shall be in accordance with all applicable rules, regulations and laws.**

**RESPONSE:**

**All aboveground storage tanks are located inside the secondary containment structures. Drainage at the site is away from the tanks and is not anticipated to enter the secondary containment constructed around the tanks. Secondary containment structures have valves which remain locked all the time. Therefore, any spill inside the secondary containment structures will be contained within the diked areas.**

**LAC 33:IX.907.F**

**3.**

**New and old tank installations should, as far as practical, be fail-safe engineered or updated into a fail-safe engineered installation to avoid spills. Liquid level sensing devices should be regularly tested to ensure proper operation. Consideration should be given to providing one or more of the following devices (optional for tanks served by adequate secondary containment systems):**

- a. high liquid level alarms with an audible or visual signal at a constantly manned operation or surveillance; in smaller facility an audible air vent may suffice;**
- b. high liquid level pump cutoff devices set to stop flow at predetermined tank content level;**
- c. direct audible or code signal communication between the tank gauger and the pumping station;**

- d. a fast response system for determining the liquid level of each bulk storage tank such as digital computers, telepulse, or direct vision gauges or their equivalent; and
- e. additional tank(s) connected to automatically receive overflow.

**RESPONSE:**

Exide has several ASTs storing oil and chemicals. These tanks have secondary containment structures around them to contain any accidental spill. These tanks are visually inspected prior to transfer of products to these tanks to prevent any tank overflow.

**LAC 33:IX.907.F**

**4.**

All above-ground storage tanks should be visually inspected by a competent person for condition and need for maintenance on a scheduled periodic basis. Such examination should include the foundation and supports of tanks that are above the surface of the ground. Visible leaks from a tank and its appurtenances shall be promptly corrected.

**RESPONSE:**

Exide has a company-wide program for inspection of tanks and associated piping. The tanks will be inspected bi-weekly. The above-ground storage tanks will be visually inspected by a competent person for condition and need for maintenance on a scheduled periodic basis. Such examination will include the foundation and supports of tanks that are above the surface of the ground. Visible leaks from a tank and its appurtenances will be promptly corrected.

**LAC 33:IX.907.F**

**5.**

Buried metallic piping installations should have a protective wrapping and coating or the equivalent, and should be cathodically protected if soil conditions warrant. If a section of buried line is exposed for any reason, it shall be carefully examined for deterioration. If corrosion damage is found, additional examination and corrective action shall be taken as indicated by the magnitude of the damage.

**RESPONSE:**

Buried metallic piping have a protective coating or the equivalent. All exposed piping will be inspected as part of the quarterly inspection program. Visible leaks from any piping will be promptly corrected.

**LAC 33:IX.907.F**  
**6.**

When a pipeline is not in service or in standby service for an extended time, the terminal connection at the transfer point should be isolated, capped, or blank-flanged as well as marked, or the on/off switch tagged as to origin.

**RESPONSE:**

When a pipeline is not in service or in standby service for an extended time, the terminal connection at the transfer point will be isolated, capped, or blank-flanged as well as marked, or the on/off switch tagged as to origin.

**LAC 33:IX.907.F**  
**7.**

Pipe supports shall be properly designed to minimize abrasion and corrosion; to allow for expansion and contraction, and to adequately support thrust loadings at bends.

**RESPONSE:**

Pipe supports have been designed in accordance with sound engineering practices. Exide will inspect and maintain these pipe supports to prevent any abrasion and corrosion and to adequately support thrust loadings at bends.

**LAC 33:IX.907.F**  
**8.**

All above-ground valves and piping should be subjected to regular examinations by operating personnel at which time the general conditions of items such as flange joints, pipeline supports, locking of valves, and metal surfaces should be assessed. In addition, periodic pressure testing may be warranted for piping in areas where facility drainage is such that a failure might lead to a spill event if there is a reason to suspect the integrity of the piping. Records of such inspections and tests shall be kept for three years and include all items addressed.

**RESPONSE:**

All above-ground valves and piping will be subject to quarterly examinations by operating personnel at which time the general conditions of items such as flange joints,

pipeline supports, locking of valves, and metal surfaces will be assessed. In addition, periodic pressure testing may be warranted for piping in areas where facility drainage is such that a failure might lead to a spill event if there is a reason to suspect the integrity of the piping. Records of such inspections and tests shall be kept for three years and include all items addressed.

**LAC 33:IX.907.F**

**9.**

**All tank cars and tank loading/unloading area drainage shall flow into a catchment basin, treatment system or other containment system designed to hold at least the maximum capacity of any single compartment of a tank car or truck loaded or unloaded at the facility.**

**RESPONSE:**

**Material loading/unloading areas drain into the facility wastewater treatment system.**

**LAC 33:IX.907.F**

**10.**

**An interlocked warning light, physical barrier system, or warning signs shall be provided in loading/unloading areas to prevent vehicular departure before complete disconnect of flexible or fixed transfer lines.**

**RESPONSE:**

**Prior to loading/unloading of tank cars or trucks, the trucks will be properly immobilized by the truck driver to prevent vehicular departure before complete loading/unloading. Warning signs are posted at the loading points to ensure the truck drivers close all valves, and disconnect and cap all lines before departure.**

**LAC 33:IX.907.F**

**11.**

**Prior to filling and departure of any tank car or truck, the lowermost drain and all outlets of such vehicles shall be closely examined for leakage, and if necessary, tightened, adjusted, or replaced to prevent leakage.**

**RESPONSE:**

**Prior to filling and departure of any tank car or truck, the lowermost drain and all outlets of such vehicles will be closely examined for leakage, and if necessary, tightened, adjusted, or replaced to prevent leakage.**

**LAC 33:IX.907.G.**

**The Plan, as applicable, should include a complete discussion of conformance with the following guidelines for facility drainage:**

**LAC 33:IX.907.G**

**1.**

**Facility drainage from undiked areas subject to spill events should if possible, flow into ponds, lagoons or catchment basins designed to retain spills or return them to the facility. Catchment basins should not be located in areas subject to flooding.**

**RESPONSE:**

**As outlined above, all ASTs have secondary containment structures. All drainage at the facility is away from the containment structures and flows into the facility wastewater treatment system. In addition, Exide will maintain an adequate quantity of oil absorbent mats at the facility as part of preventive measures for containing spills at the facility site.**

**LAC 33:IX.907.G**

**2.**

**Facility drainage systems should be adequately engineered to prevent spills from reaching the waters of the state in the event of equipment failure or human error at the facility.**

**RESPONSE:**

**Response for this section has been addressed in LAC 33:IX.907.G.1.**

**LAC 33:IX.907.H**

**The plan, as applicable, should include a complete discussion of conformance with the following guidelines for facility security:**

**LAC 33:IX.907.H**

**1.**

**Means of restricting unauthorized entry or other security procedures should be provided when the facility is not attended.**

**RESPONSE:**

**The subject facility is enclosed by a chain-link fence. Access to the facility will be through gates which are monitored 24-hours per day, 7-day a week.**

**LAC 33:IX.907.H**

**2.**

**Master flow and drain valves and any other valves that permit direct outward flow of spilled substances to the waters of the state should be securely locked, tagged, or sealed in the closed position when unattended. Sample cocks, gauge valves, and other small valves are not subject to this requirement.**

**RESPONSE:**

**There are no master flow and drain valves and any other valves that will permit direct outward flow of spilled substances to the waters of the state.**

**LAC 33:IX.907.H**

**3.**

**The starter control on all pumps with discharge piping open to the waters of the state should be locked in the "off" position, or accessible only to authorized personnel when in non-operating or non-standby status.**

**RESPONSE:**

**Not applicable.**

**LAC 33:IX.907.H**

**4.**

**The loading/unloading connections of pipelines should be securely capped or blank-flanged when not in service or standby service. This security practice should also apply to pipelines that are emptied either by draining or by inert gas pressure.**

**RESPONSE:**

**The loading/unloading connections of pipelines will be securely capped or blank-flanged when not in service or standby service. This security practice will also apply to pipelines that are emptied either by draining or by inert gas pressure.**

**LAC 33:IX.907.H**

**5.**

**Facility lighting should be commensurate with the type and location of the facility and should provide for the following: (These provisions may not apply to oil and gas production sites.)**

- a. discovery of spills occurring during hours of darkness, both by operating personnel and by non-operating personnel (the general public, local police, etc.); and**

- b. **prevention of spills that may result through acts of vandalism.**

**RESPONSE:**

The facility has an extensive and operational dusk-to-dawn lighting system which is sufficient for facility personnel to discover spills occurring during hours of darkness as well as to prevent spills that may result through acts of vandalism.

**LAC 33:IX.907.I**

**Personnel training and spill prevention procedures should be employed, and brief discussions of the following should be included in the plan:**

**LAC 33:IX.907.I**

**1.**

**Operators are responsible for properly instructing the appropriate personnel in the operation and maintenance of equipment to prevent or contain spills and all applicable spill control rules and regulations.**

**RESPONSE:**

All personnel at the facility involved with loading/unloading of chemicals, oil and lubricants, and fuel, and transfer of chemicals and lubricating oil to or from the tanks have undergone an extensive training program. In addition, facility personnel are also trained to perform emergency repairs to leaking units and appurtenances, and employ the onsite emergency spill kit.

**LAC 33:IX.907.I**

**2. --**

**Each facility should have a designated person who is accountable for spill prevention who reports to line management.**

**RESPONSE:**

Upon indication of an imminent or an actual emergency at the facility, the On-Site Coordinator, Mr. Steve Krul, Environmental Manager or if unavailable, Mr. Mike Ashford, Maintenance Superintendent, or Mr. Steve Grau, Plant Manager, will be contacted immediately and notified of the location and nature of the emergency. If none of these three individuals are available at the site, they will be contacted at their residences (see response to LAC 33:IX.907.B.)

The On-Site Coordinator, responsible for internal facility alarms and management notification, will immediately

contact Mr. Steve Grau, Plant Manager at the facility for applicable notification to the pertinent regulatory agencies.

**LAC 33:IX.907.I**

**3.**

**Operators should schedule and conduct spill prevention briefings for their operating personnel and appropriate contractors at intervals frequent enough to assure adequate understanding of the plan for that facility. Such briefings should highlight and describe known spill events or failures, malfunctioning components, and recently developed precautionary measures.**

**RESPONSE:**

Personnel at the facility are instructed periodically in the knowledge and use of the plan, proper operation of onsite pump systems, loading/unloading procedures, fire extinguishers, and the use of the onsite emergency spill kits. As part of regular continuing training program, Exide has a training program for new employees in addition to the annual refresher courses for the trained employees.

**LAC 33:IX.907.J**

**Inspections and Records**

**The plan shall provide for inspections required by this Chapter. Inspections shall be in accordance with written procedures developed for the facility by the operator. These written procedures shall be part of the plan. Inspection records shall be signed or initialed by the inspector, appropriate supervisor or the facility designee (LAC 33:IX.303.H), and shall be retained for a minimum period of three years.**

**RESPONSE:**

Routine visual inspections of the tanks and transfer equipment at the facility will be performed on a daily basis as part of normal operations to ensure proper facility operating conditions. In addition, Exide conducts a quarterly inspection that includes observation of conditions, need for maintenance and repair of visible leaks from tanks and piping, drum storage areas, and other related transfer and storage appurtenances. These inspections, which will be documented, will be conducted in accordance with the outline included in Appendix A. If during these quarterly inspections a problem is identified, it would be reported



immediately to Mr. Steve Krul, Environmental Manager or his designee.

Exide will maintain all records of quarterly inspections/spill incidents at the facility for a period of 3 years and make available to authorized representatives of the LDEQ for onsite review during normal working hours.

The following responses to Federal Spill Prevention, Control and Countermeasures (SPCC) Regulations address Federal regulatory issues that are not addressed in the responses to the Louisiana Spill Prevention and Control Regulations.

**Code of Federal Regulations, Title 40, Part 112 (40 CFR 112)**

**Oil Pollution Prevention; Non-transportation-related  
Onshore and Offshore Facilities**

**Section 112.7 Guidelines for the Preparation and Implementation of a Spill  
Prevention, Control and Countermeasure Plan**

The SPCC Plan shall be a carefully thought-out plan, prepared in accordance with good engineering practices, and which has the full approval of management at a level with authority to commit the necessary resources. If the plan calls for additional facilities or procedures, methods, or equipment not yet fully operational, these items should be discussed in separate paragraphs, and the details of installation and operational start-up should be explained separately. The complete SPCC Plan shall follow the sequence outlined below, and include a discussion of the facility's conformance with the appropriate guidelines listed:

- (a) A facility which has experienced one or more spill events within twelve months prior to the effective date of this part should include a written description of each such spill, corrective action taken and plans for preventing recurrence.

The Exide facility has not experienced a spill event within the past 12 months.

**40 CFR 112.7(e)**

**(1) Facility drainage (onshore); (excluding production facilities).**

- (iii) Plant drainage systems from undiked areas should, if possible, flow into ponds, lagoons or catchment basins, designed to retain oil or return it to the facility. Catchment basins should not be located in areas subject to periodic flooding.

Facility drainage flows into the wastewater treatment facility and any spill will be prevented from reaching navigable waters.

(iv)

If plant drainage is not engineered as above, the final discharge of all in-plant ditches should be equipped with a diversion system that could, in the event of an uncontrolled spill, return the oil to the plant.

Not applicable.

(v)

Where drainage waters are treated in more than one treatment unit, natural hydraulic flow should be used. If pump transfer is needed, two "lift" pumps should be provided, and at least one of the pumps should be permanently installed when such treatment is continuous. In any event, whatever techniques are used facility drainage systems should be adequately engineered to prevent oil from reaching navigable waters in the event of equipment failure or human error at the facility.

Facility drainage systems in the facility are designed and engineered to prevent oil from reaching navigable waters in the unlikely event of equipment failure or human error at the facility.

**(2) Bulk storage tanks (onshore); (excluding production facilities).**

(i)

No tank should be used for the storage of oil unless its material and construction are compatible with the material stored and conditions of storage such as pressure and temperature, etc.

The materials and construction of all oil storage tanks at the Exide facility are designed to be compatible with the materials stored and the conditions of storage. Also, all tanks within the facility are routinely inspected for leakage or corrosion in the event that the tank materials or construction become incompatible with the stored product or storage conditions during use.

(v)

**Partially buried metallic tanks for the storage of oil should be avoided, unless the buried section of the shell is adequately coated, since partial burial in damp earth can cause rapid corrosion of metallic surfaces, especially at the earth/air interface.**

**No partially buried tanks are used for the storage of oil at the Exide facility.**

(vii)

**To control leakage through defective internal heating coils, the following factors should be considered and applied, as appropriate.**

- (A) **The steam return or exhaust lines from internal heating coils which discharge into an open water course should be monitored for contamination, or passed through a settling tank, skimmer, or other separation or retention system.**

**Not applicable.**

- (B) **The feasibility of installing an external heating system should also be considered.**

**Not applicable. No external heating systems for oil storage tanks is required at the Exide facility.**

**40 CFR 112.7(e)(2)**

(ix)

**Plant effluents which are discharged into navigable waters should have disposal facilities observed frequently enough to detect possible system upsets that could cause an oil spill event.**

**Plant effluents and their treatment systems are visually inspected on a daily basis.**

(x)

**Visible oil leaks which result in a loss of oil from tank seams, gaskets, rivets and bolts sufficiently large to cause the accumulation of oil in diked areas should be promptly corrected.**

Oil leaks will be cleaned up and disposed of in a timely manner, in accordance with facility's maintenance and housekeeping procedures.

(xi)

Mobile or portable oil storage tanks (onshore) should be positioned or located so as to prevent spilled oil from reaching navigable waters. A secondary means of containment, such as dikes or catchment basins, should be furnished for the largest single compartment or tank. These facilities should be located where they will not be subject to periodic flooding or washout.

All ASTs at the Exide facility have secondary containment structures. The secondary containment structures have the capacity of 110% of the largest tank unit.

**40 CFR 112.7(e)(3)**

(v)

Vehicular traffic granted entry into the facility should be warned verbally or by appropriate signs to be sure that the vehicle, because of its size, will not endanger aboveground piping.

Appropriate signs and verbal warnings are used at the Exide facility to alert operators of vehicle that may harm aboveground piping.

**40 CFR 112.7(e)(4)**

(i)

Tank car and tank truck loading/unloading procedures should meet the minimum requirements and regulation established by the Department of Transportation.

Tank truck loading/unloading procedures are followed within the facility in accordance with the requirements and regulations established by the Department of Transportation.

**40 CFR 112.7(e)(5)**

(5) Oil production facilities (onshore).

Not applicable.

**(6) Oil drilling and workover facilities (onshore).**

Not applicable.

**(7) Oil drilling, production, or workover facilities (offshore).**

Not applicable.

## FIGURES

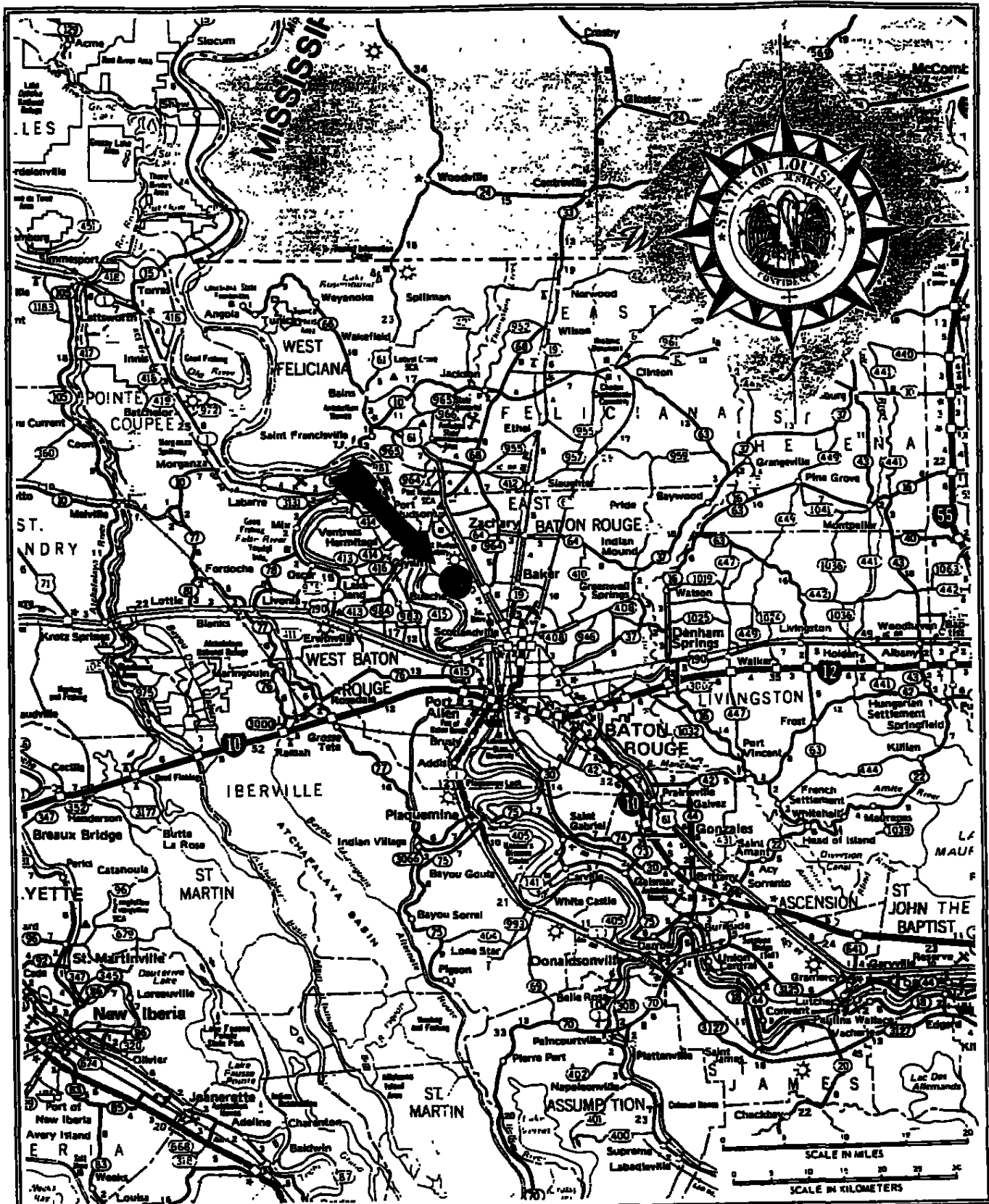
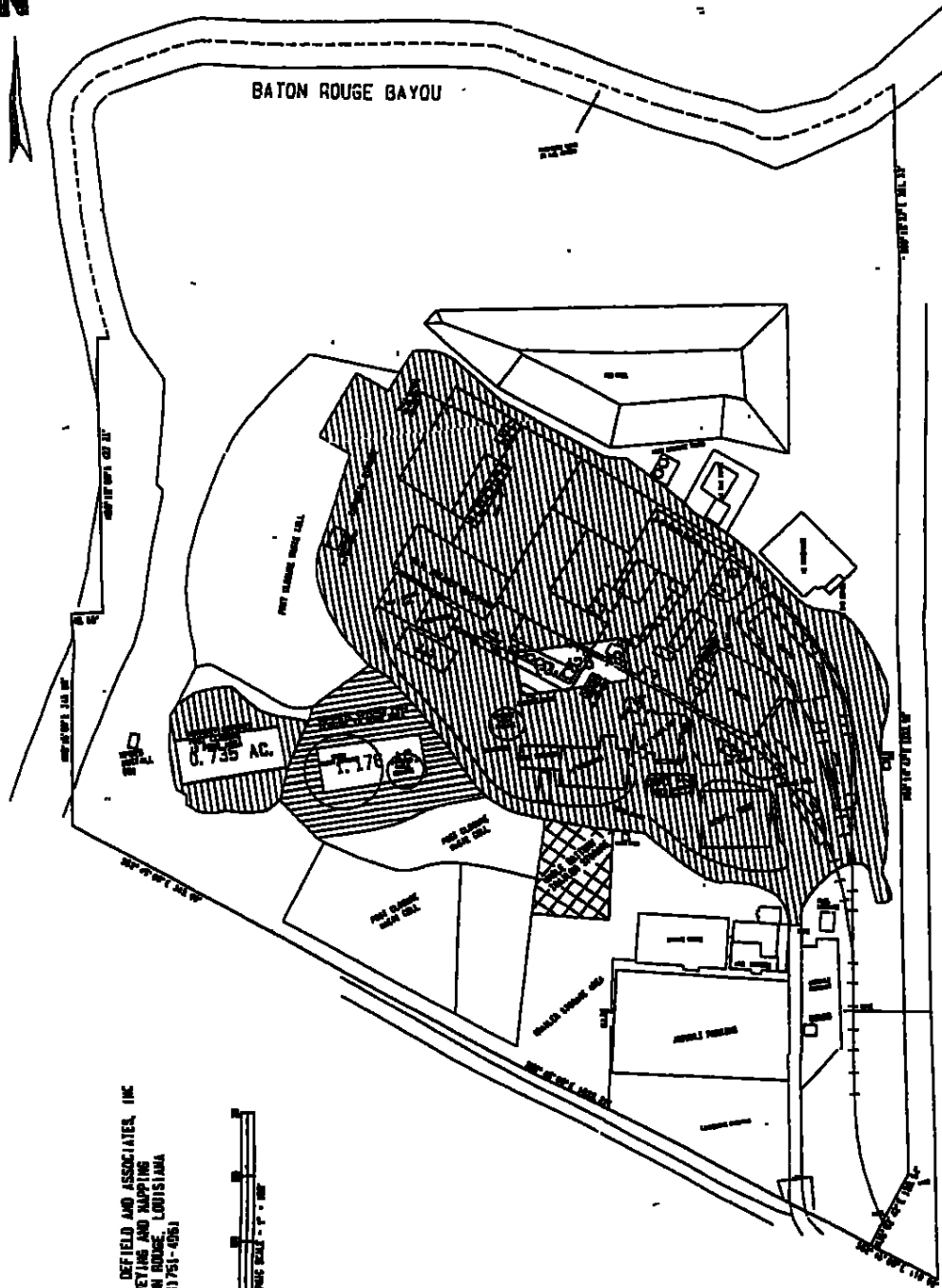


Figure 1. Site Vicinity Map  
Exide Corporation Baton Rouge Smelter  
Baton Rouge, LA

Source: State Road Map, 1994







R.J. DEFIELD AND ASSOCIATES, INC.  
SURVEYING AND MAPPING  
BATON ROUGE, LOUISIANA  
(504) 751-4051



Figure 3: Facility Site Plan  
Eddie Corporation Baton Rouge Sanitary  
Baton Rouge, LA

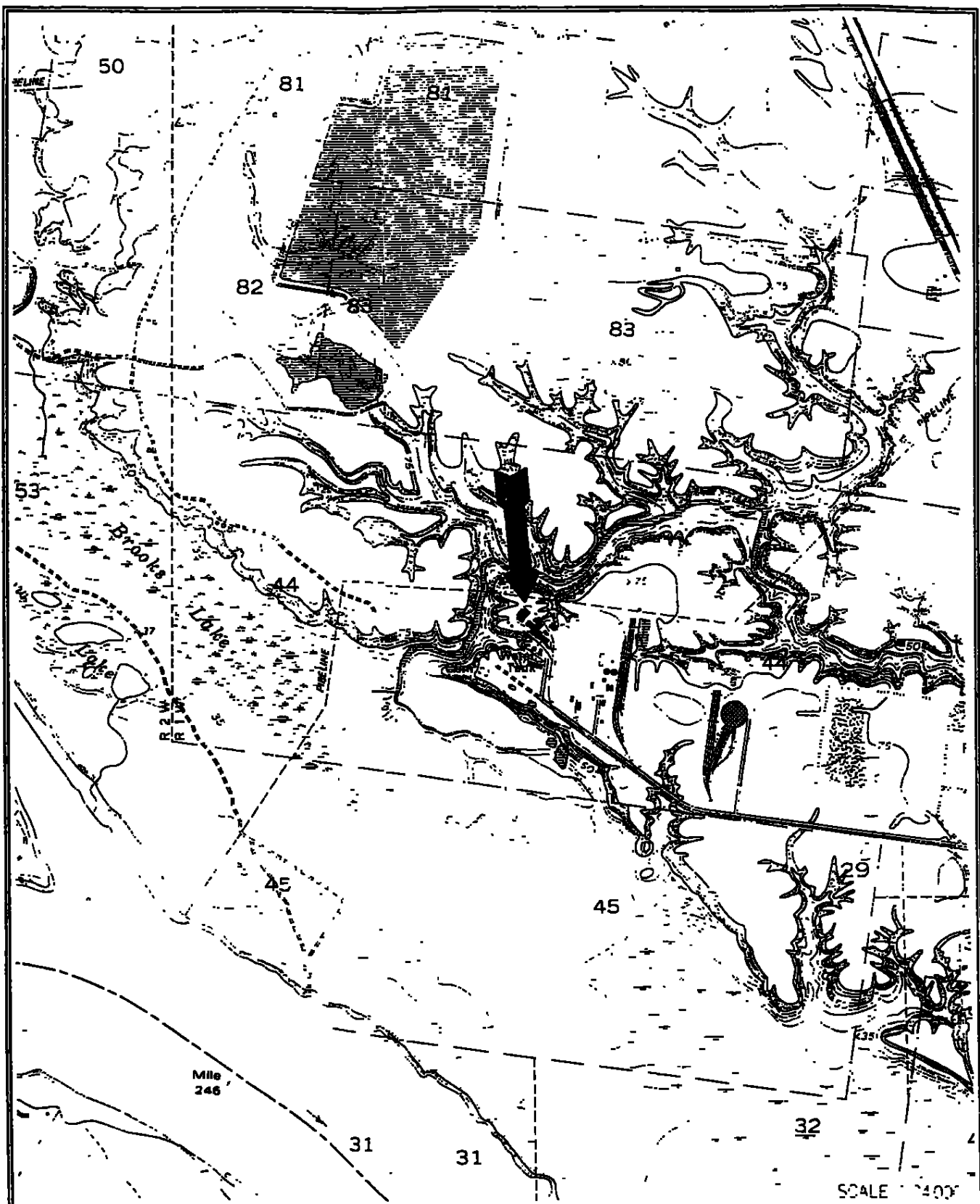


Figure 2. Sue Topographic Map  
Exide Corporation Baton Rouge Smelter  
Baton Rouge, LA

Source: USGS, 1980



**TABLE**

Table 1. Listing of Above-Ground Storage Tanks

|     | Service       | Capacity<br>(Gallons) | Construction<br>Materials | Year<br>Installed | Containment | Reportable Quantity |
|-----|---------------|-----------------------|---------------------------|-------------------|-------------|---------------------|
| 1.  | Filter Aid    | 2,000                 | Stainless Steel           | 1987              | Yes         | *                   |
| 2.  | Lime          | 2,000                 | Stainless Steel           | 1987              | Yes         | *                   |
| 3.  | Sepran        | 2,000                 | Stainless Steel           | 1987              | Yes         | *                   |
| 4.  | Storm Water   | 600,000               | Galvanized Steel          | 1987              | Yes         | N/A                 |
| 5.  | Process Water | 110,000               | Galvanized Steel          | 1987              | Yes         | N/A                 |
| 6.  | Recycle Water | 40,000                | Galvanized Steel          | 1987              | Yes         | N/A                 |
| 7.  | Diesel Fuel   | 4,000                 | Steel                     | 1988              | Yes         | 42 gals             |
| 8.  | Gasoline Fuel | 2,000                 | Steel                     | 1988              | Yes         | 42 gals             |
| 9.  | Kerosene      | 550                   | Steel                     | 1988              | Yes         | 42 gals             |
| 10. | Waste Oil     | 450                   | Steel                     | 1988              | Yes         | 42 gals             |
| 11. | Clean Acid    | 15,000                | Fiberglass                | 1989              | Yes         | 1,000 lbs           |
| 12. | Clean Acid    | 15,000                | Fiberglass                | 1989              | Yes         | 1,000 lbs           |
| 13. | Dirty Acid    | 1,500                 | Plastic                   | 1989              | Yes         | 1,000 lbs           |
| 14. | Dirty Acid    | 1,500                 | Plastic                   | 1989              | Yes         | 1,000 lbs           |
| 15. | Diesel Fuel   | 500                   | Steel                     | 1990              | Yes         | 42 gals             |
| 16. | Caustic- 50%  | 15,000                | Fiberglass                | 1995              | Yes         | 1,000 lbs           |
| 17. | Caustic - 50% | 15,000                | Fiberglass                | 1995              | Yes         | 1,000 lbs           |

\* No information is available for reportable quantities.  
N/A -discharge is regulated under the facility water discharge permit.

## APPENDICES

**APPENDIX A**

**QUARTERLY FACILITY INSPECTION FORM**

**QUARTERLY STORAGE TANK INSPECTION FORM**

**DATE:**

**TIME:**

**INSPECTOR:**

|           |  |           |              |
|-----------|--|-----------|--------------|
| <b>1.</b> | <b>Tank lines, valves, pumps are structurally sound with no visual deterioration and/or leaks</b>  | <b>OK</b> | <b>OTHER</b> |
| <b>2.</b> | <b>The tank foundations and containments are structurally sound without cracks and there is no evidence of foundation settling which could result in tank failure or spills.</b> |           |              |

**Remarks:**

**APPENDIX B**

**EMERGENCY TELEPHONE NUMBERS**



## **EMERGENCY TELEPHONE NUMBERS**

- 1) U.S. EPA Region IV  
Dallas, Texas  
Phone: (214) 665-2222 (24 Hours)
- 2) LA Dept. of Environmental Quality  
Baton Rouge, Louisiana  
Phone: (225) 342-1234 (24 Hours)
- 3) U.S. Coast Guard  
New Orleans, Louisiana  
Phone: (504) 589-6261 (24 Hours)
- 4) National Response Center (NRC)  
Washington, D.C.  
Phone: 1-800-424-8802 (24 Hours)
- 5) Fire Department/Emergency  
Phone: 911
- 6) State Police, Troop A  
Baton Rouge, Louisiana  
Phone: (225) 754-8500
- 7) East Baton Rouge Sheriff's Office  
Phone: (225) 389-5000
- 8) HAZMATT/TESS  
Baton Rouge, LA  
(225) 925-6595

## **APPENDIX C**

### **SUMMARY OF SPILL RESPONSE ACTION PLANS**

**IN THE EVENT OF AN OIL SPILL, THE PERSON OBSERVING THE SPILL WILL:**

- \* Take appropriate correct measures to stop the continued release
- \* Contain the material if possible
- \* Estimate the amount spilled
- \* Notify their team leader

**The team leader will then:**

- \* Notify the On-site Coordinator, Mr. Steve Krul, Environmental Manager or Mr. Steve Grau, Plant Manager or Mr. Mike Ashford, Maintenance Superintendent
- \* Provide the known details about the spill

If the spill is onto soil and is greater than 42 gallons, the On-site Coordinator will contact the Environmental Manager who will notify La DEQ at (225) 342-1234 **WITHIN 24 HOURS**. In the event that the Environmental Manager can not be contacted, the On-site Coordinator will make the contact to LDEQ:

**If the oil reaches or is likely to reach water, then the LDEQ MUST BE CONTACTED WITHIN 1 HOUR. ALSO THE NATIONAL RESPONSE CENTER MUST BE CONTACTED AT (800) 424-8802.**

All spilled oil and contaminated materials must be cleaned up and managed properly, Contact the Environmental Manager for assistance.

The spill report form must be completed as soon as possible.

**SPILL CLEANUP KITS ARE STRATEGICALLY LOCATED AT THE FACILITY.**

**IN THE EVENT OF CHEMICAL SPILL, THE PERSON OBSERVING THE SPILL WILL:**

- \* Consider the health risk from the spilled material to responders
- \* Take appropriate correct measures to stop the continued release
- \* Contain the material if possible
- \* Estimate the amount spilled
- \* Notify their team leader

**The team leader will then:**

- \* Notify the On-site Coordinator, Mr. Steve Krul or Mr. Steve Grau or Mr. Mike Ashford
- \* Provide the known details about the spill

**The On-site Coordinator will determine what notifications to regulatory agencies are required. If the Environmental Manager can not be contacted and the spill results in a condition which could endanger the health and safety of the public or cause significant impact to the environment, the following notification must be made within 1 hour:**

- \* La Dept. of Public Safety (State Police) Hot Line..... (225) 925-6595
- \* La DEQ Baton Rouge Office..... (225) 342-1234
- \* U.S. EPA Region VI.....(214) 665-2222
- \* National Response Center.....(800) 424-8802
- \* IF INTO WATER U S Coast Guard.....(504) 589-6261

**REPORTABLE SPILLS WHICH DO NOT RESULT IN EMERGENCY CONDITIONS REQUIRE NOTIFICATION TO REGULATORY AGENCIES WITHIN 24 HOURS:**

- \* La DEQ..... (225) 342-1234

**HAZARDOUS MATERIALS ALSO REQUIRE NOTIFICATION TO EPA**

- \* REGION VI..... (214) 665-2222

**SPILL CLEANUP KITS ARE STATEGICALLY LOCATED AT THE FACILITY.**

**APPENDIX D**  
**SPILL REPORT FORM**

# SPILL REPORT FORM

SPILL INFORMATION

1. Location of Spill

2. Date of Spill

3. Time

4. Cause of Spill

5. Type of Equipment, S/N

6. Quantity of Spill

7. Weather at Time of Spill

8. Pre Cleanup Sampling Data (If Applicable)

9. Pre Cleanup Sampling Methodology

10. Describe cleanup activity. Include a description of any solid surfaces cleaned and a description of the double wash/rinse method used, if applicable. Approximate the depth of soil excavation and the amount of soil removed.

11. Date of Cleanup Completion

12. Time of Completion

13. Person Making This Report

14. I certify that the appropriate oil cleanup requirements have been met and that the information listed above is true to the best of my knowledge.

Printed Name:

Signature:

REPORTS TO AGENCIES

15. Agency Reported To

16. Person Reported To

Date Reported

Time

17. Person Making Report

18. Agency Reported To

19. Person Reported To

Date Reported

Time

20. Person Making Report

21. Agency Reported To

22. Person Reported To

Date Reported

Time

23. Person Making Report

Comments

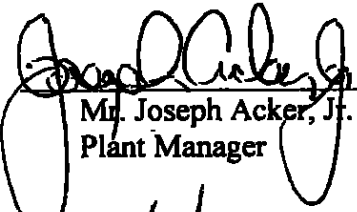
**APPENDIX 17**

**WASTE MINIMIZATION CERTIFICATION**

# **EXIDE TECHNOLOGIES**

## **WASTE MINIMIZATION CERTIFICATION**

I hereby certify that as the Environmental Protection Agency (EPA) is committed to a national policy for hazardous waste management, it is Exide Technologies' goal to reduce and minimize the quantity of waste generated onsite. Exide Technologies implements the waste minimization goal through a corporate and facility level program of source reduction and environmentally sound recycling. Reduction in the toxicity, volume and present and future threat to human health and the environment are the criteria by which all waste activities are judged. All employees are encouraged to adopt the policy in daily operations and periodically promote new ideas to reduce waste generation.

  
Mr. Joseph Acker, Jr.  
Plant Manager  
10/10/01  
Date



**APPENDIX 18**

**EXIDE TECHNOLOGIES USED OIL PLAN**

## **Exide Used Oil Plan**

### **Storage**

Used oil will be collected from equipment maintenance activities that occur at the facility and stored in an aboveground storage tank located within the drainage area of the facility. The tank is clearly identified with the words "Used Oil".

Used oil will not be mixed with any other hazardous wastes listed in LAC 33:V.4901 and will not be managed as hazardous waste. Therefore, the storage of oil at this facility will be managed as used oil under the provisions of LAC 33:V.Chapter 40.

### **Transportation**

Exide will ensure that the used oil stored in the tank is transferred to an authorized, used oil collection, recycling center, or disposal facility that is authorized to manage used oil by a transporter that has obtained the appropriate EPA identification number. Copies of the manifests shall be maintained at the facility for a minimum period of one (1) year

### **Contingency Plan**

The tank will be maintained in good condition with no severe rusting, apparent structural defects or deterioration so that the potential for a leak from the tank will be minimized. Facility inspections of the exterior of the tank will be conducted weekly to ensure that the integrity of the tank is sustained. Facility personnel will be trained in control procedures as outlined in this plan. All procedures for preventing a leak or spill from the tank will be followed. However, in the event of a leak or spill from the tank, Exide will employ the following measures to ensure that the spillage has been contained to prevent a release of used oil into the environment:

1. Exide will apply appropriate measures to stop any detectable leaks or spills.
2. Facility personnel will clean up and properly manage the released oil and other materials. All visible signs of oil contamination will be managed through the use of oil absorbent pads, booms or other sufficient mechanisms designed to control incidental oil releases. All spill equipment including the pads, booms, and empty drums will be stored in the vicinity of the used oil tank. The oil-contaminated materials will be drained so that no visible signs of free-flowing oil remain. These materials will be transferred by an authorized transporter and disposed at an authorized disposal unit. The used oil reclaimed from these materials will be returned to the used oil storage tank.

3. Incidental oil spills or leaks will be controlled through controlled site drainage to the wastewater treatment system. Therefore, unauthorized releases and/or discharges are not expected. However, in the event of such an occurrence, the notification requirements of LAC 33:XI.715 will be followed.
2. Exide will repair any leaking or deteriorated areas of the tank prior to returning the tank to service.



# INTERNATIONAL PETROLEUM CORPORATION & INTERNATIONAL ENVIRONMENTAL SERVICES

EarthCare Companies



**EarthCare**

FLUIDS/SOLIDS RECYCLING SPECIALISTS FOR OVER 50 YEARS

## REUSE / RECYCLE TRANSPORTATION / RECEIVING MANIFEST

- ☒ 14890 Intracoastal Drive  
New Orleans, LA 70129  
FED. EPA I.D.# LAD092086106  
(504) 254-9021 • (800) 523-9071
- ☐ 505 S. Market Street  
Wilmington, DE 19801  
FED. EPA I.D.# DED984073692  
(302) 421-9306 • (800) 222-2511
- ☐ 105 S. Alexander Street  
Plant City, FL 33568  
FED. EPA I.D.# FL0065880613  
(813) 754-1804 • (800) 282-8686
- ☐ 6305 E. Lombard Street  
Baltimore, MD 21224  
FED. EPA I.D.# MDD985389816  
(410) 633-0608
- ☐ 238 Jerome Road  
Lafayette, LA 70507  
FED. EPA I.D.# LAD981889732  
(504) 254-9021 • (800) 523-9071
- ☐ 104 Lassus  
Patterson, LA 70382  
FED. EPA I.D.# LAR000028419  
(504) 399-1161 • (888) 389-1161
- ☐ 2056 E. 21st Street  
Jacksonville, FL 32206  
FED. EPA I.D.# FLA000031393  
(904) 356-8999 • (800) 388-5706

|                                  |                                |                    |                          |
|----------------------------------|--------------------------------|--------------------|--------------------------|
| GENERATOR / SHIPPER              |                                | EPA ID#            |                          |
| NUMBER: <b>E9211</b>             | NAME: <b>Exide Corporation</b> | N/A                |                          |
| LOCATION (OF MATERIAL PICKED UP) | CITY                           | STATE              | ZIP                      |
| <b>2400 Brookhaven DR.</b>       | <b>Baton Rouge</b>             | <b>La.</b>         |                          |
| BILLED TO                        |                                |                    |                          |
| <b>SAME</b>                      |                                |                    |                          |
| BUSINESS MAILING ADDRESS         |                                | CITY               | STATE                    |
| <b>P.O. Box 74040</b>            |                                | <b>Baton Rouge</b> | <b>La.</b>               |
| <b>10/19/00</b>                  |                                | <b>2:10</b>        | <b>G: 025 / 775-3040</b> |
| DATE SHIPPED                     |                                | TIME               | B/T: ( )                 |

EMERGENCY CONTACT PHONE NUMBERS: (800) 523-9071 OR (504) 254-9021

| DESCRIPTION / CLASSIFICATION   |   |   |          |
|--|---|---|----------|
| COMBUSTIBLE LIQUID, (USED OIL [CONTAINS PETROLEUM OIL])<br>N.O.S., NA 1993, PG III | CONTAINERS  |   | QUANTITY |
|  | 1   | TT  | 540      |
| OTHER  | No.   | TYPE  | UNIT     |
|  |   |   | GAL      |
| EPA WASTE CODE:<br><b>NON-HAZARDOUS</b>  | PRODUCT / WASTE SOURCE REDUCTION CODE:<br><b>M061</b> | ADDITIONAL MATERIAL DESCRIPTION:<br><b>USED OIL IS SUBJECT TO REGULATION BY ONE OR MORE OF THE FOLLOWING REGULATORY AUTHORITIES:<br/>U.S.E.P.A.: 40 CFR PART 279<br/>ALABAMA D.E.M.: ADM. CODE, DIV. 14, CHAP. 335-14-17<br/>FLORIDA: D.E.P.: F.S. CHAP. 403; F.A.C. CHAP. 62-710<br/>GEORGIA: 40 CFR, PART 279<br/>LOUISIANA D.E.Q.: LAC TITLE 33, PART V, CHAP. 40<br/>MISSISSIPPI D.E.Q.: M.H.W.M.R., CHAP. 279<br/>TEXAS: T.N.R.C.C., CHAP. 324</b> |          |
| OTHER  |   | SPECIAL HANDLING INSTRUCTIONS:<br><b>AVOID SKIN &amp; TISSUE CONTACT. WEAR GLOVES &amp; EYE PROTECTION. IF UNDELIVERABLE OR UNACCEPTABLE TO RECYCLE REUSE FACILITY, RETURN TO GENERATOR. IN CASE OF EMERGENCY CONTACT LDPS HAZARDOUS MATERIALS UNIT AT 504-823-8398 AND INTERNATIONAL PETROLEUM AT 800-523-9071 OR 504-254-9021</b>   |          |

**GENERATOR / SHIPPER CERTIFICATION**  
We, as "Generator" of the used oil / product, hereby certify that we have not mixed any hazardous waste into this used oil / product being picked up by International Petroleum Corp., its subsidiaries or assigned subcontractors. This used oil / product is being transported directly and solely to an International Petroleum Corp. owned facility to be recycled in accordance with all federal, state and local regulations. We, as "Generator", also certify that this used oil / product does not contain any detectable levels of PCB's. I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, secured, marked and labeled, and are in all respects in proper condition for transport by highway according to applicable federal and state government regulations. I also understand, acknowledge and certify that any materials being offered to International Petroleum are compatible with their environmental permits and are generation source referenced from the list of acceptable materials on the reverse side of this document. Unless I am a small quantity generator who has been specifically exempted by statute or regulation from the duty to make a waste minimization certification under Section 3002(b) of RCRA, I also certify that I have a program in place to reduce the volume and toxicity of any waste generated to the degree I have determined to be economically practical and I have selected the method of treatment, storage, recycling or disposal currently available to me which minimizes the present and future threat to human health and the environment.

PRINTED NAME: **ADAM BROWN** SIGNATURE: \_\_\_\_\_ DATE: **10/19/00**

**TRANSPORTER ACKNOWLEDGEMENT OF RECEIPT OF MATERIALS**  
PRINTED NAME: **JACK LAESEN** SIGNATURE: **J. Laesen** DATE: **10/19/00**

**RECYCLE/REUSE RECEIVING FACILITY ACKNOWLEDGEMENT OF RECEIPT OF MATERIALS**  
PRINTED NAME: \_\_\_\_\_ SIGNATURE: \_\_\_\_\_ DATE: **11**

| CODES<br>(SEE REVERSE) | PRODUCT<br>DESCRIPTION | QUANTITY   | UNIT       | UNIT<br>PRICE | SUB-TOTAL  |
|------------------------|------------------------|------------|------------|---------------|------------|
| <b>01</b>              | <b>OIL</b>             | <b>540</b> | <b>GAL</b> | <b>N/C</b>    | <b>N/C</b> |
|                        |                        |            |            |               |            |
|                        |                        |            |            |               |            |
|                        |                        |            |            |               |            |
|                        |                        |            |            |               |            |

## **APPENDIX 19**

## **PHOTOGRAPHS**

**EXIDE TO PROVIDE**

**FIGURE 1**  
**SITE LOCATION MAP**



**Reference**  
Base map compiled of U.S.G.S. 7.5 minute topographic maps, "Walls, LA," dated 1963, revised 1994 and "Scottsville, LA," dated 1963, revised 1994. Image is referenced to UTM NAD 27 Zone 15.



### Site Location Map

Class 3 Modification Request  
Hazardous Waste Containment Building  
East Baton Rouge Parish

Exide Technologies  
Baton Rouge, Louisiana



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ENGINEERING & ENVIRONMENTAL GROUP, LLC

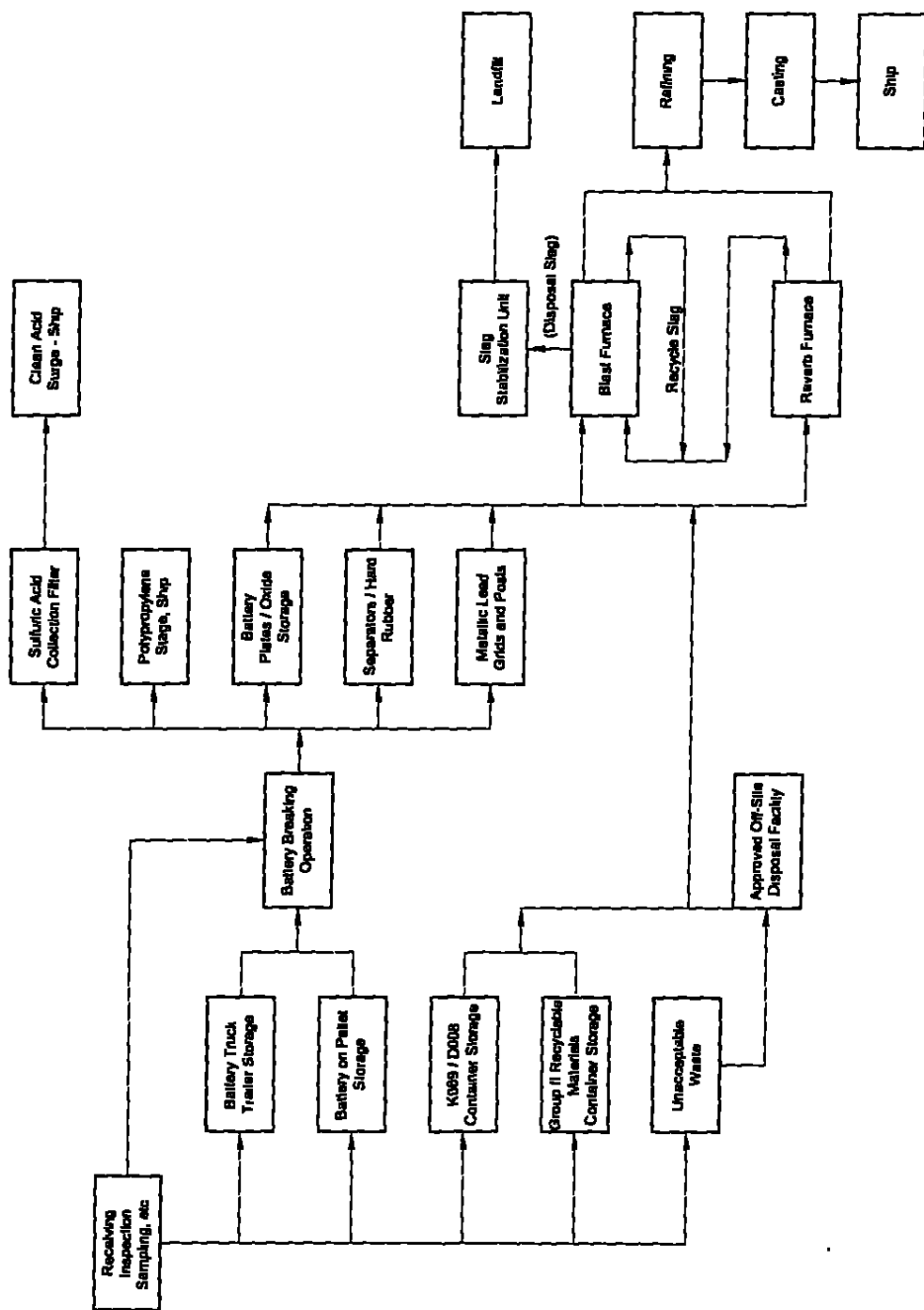
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|          |              | Checked  | TAB      |
|          |              | Approved | TAB      |
| Dwg No   | 028-001-B004 | Date     | 09/20/10 |

Fig



**FIGURE 2**  
**PROCESS FLOW DIAGRAM**

**PROVIDENCE ENGINEERING**



## Process Flow Diagram

Part B Permit Modification  
East Baton Rouge Parish

Exide Technologies  
Baton Rouge, Louisiana



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BATON ROUGE, LOUISIANA

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| Doc Code  | 028-001      | Drawn:    | LMH       |
| Dwg. No.: | 028-001-A005 | Checked:  | PLP       |
|           |              | Approved: | PLP       |
|           |              | Date:     | 09/20/01C |

2  
Figure

**FIGURE 3**  
**FACILITY PLOT PLAN**



**FIGURE 4**  
**CONTAINMENT BUILDING MAP**

## **Reference Sheet**

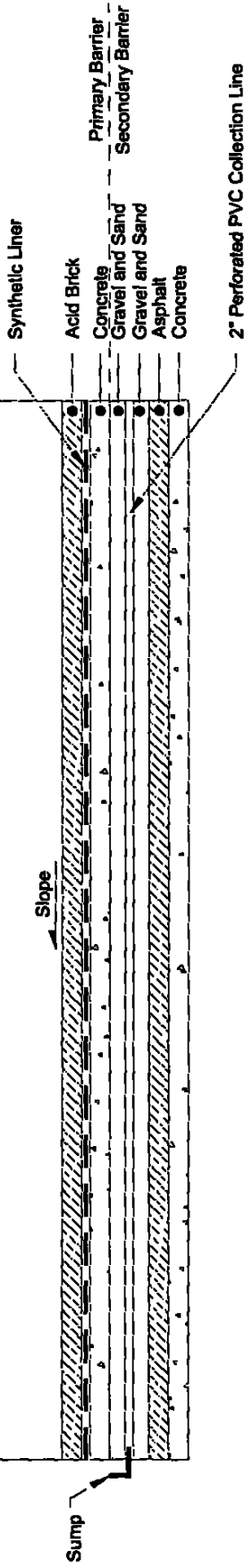


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**FIGURE 5**  
**CONTAINMENT BUILDING FLOOR DESIGN**

# Paste Storage Area of Containment Building



## Containment Building

### Floor Design

Class 3 Modification Request  
Hazardous Waste Containment Building  
East Baton Rouge Parish

Exide Technologies  
Baton Rouge, Louisiana



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BATON ROUGE, LOUISIANA

|          |              |          |           |
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| Doc Code | 028-001      | Drawn    | LMH       |
| Dwg No   | 028-001-A001 | Checked  | TAB       |
|          |              | Approved | TAB       |
|          |              | Date     | 05/10/01C |
|          |              |          | <b>5</b>  |
|          |              |          | Figure    |